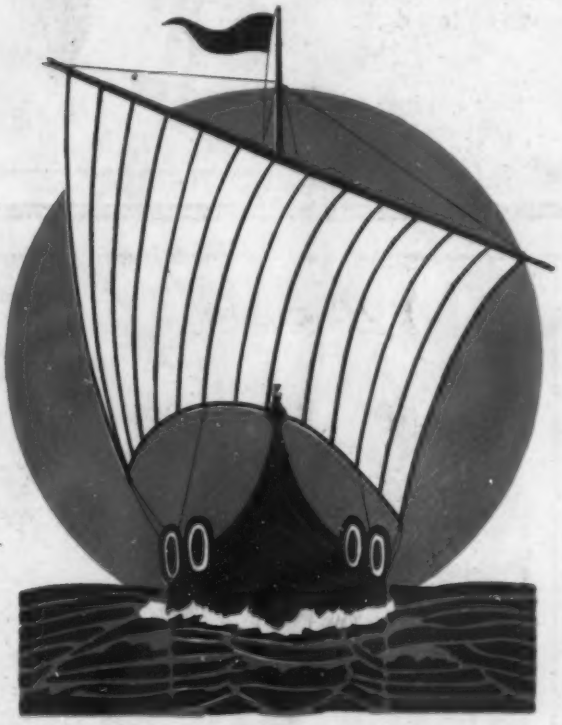
Yachting

OCTOBER, 1919



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PERIODICAL DIVISION
DEC 16 1919

Pam, an Alden Designed "R" Boat

A Newer Day *Spray*, C. Andrade, Jr.

Some Racing Results of Nineteen-Nineteen

Navy Boys in New York Harbor cheer the winning S.C. 131 as she finishes her fast run from Bermuda. The Navy's race of Submarine Chasers on the last leg of their home bound trip from the Adriatic was the Standard Engine's own race, for none but Standards are in these chasers.

Get latest data.

Back of the Standard Engine is the STANDARD MOTOR CONSTRUCTION COMPANY, 186 Whiton St., Jersey City, N. J.

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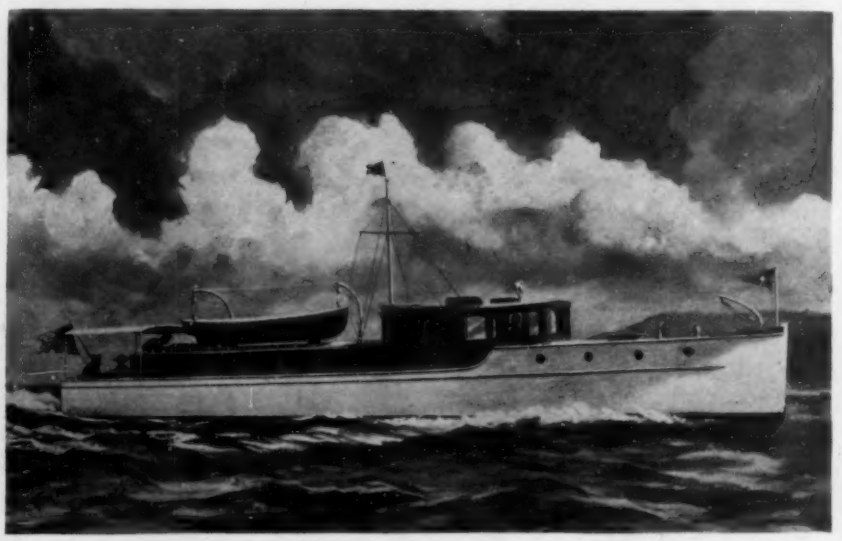
It is the most delightful and thrilling way to travel from your country home to business.

Our new express motor-ferry boats make commuting by water a charming digression from the usual modes of travel.

An ideal boat for Florida.



52-Foot Commuter

CONSOLIDATED
SHIPBUILDING CORPORATION
MORRIS HEIGHTS, NEW YORK CITY

Contents of Yachting

FOR OCTOBER, 1919

WILLIAM ATKIN, Editor

VOL. XXVI NUMBER IV

THE thirty-five footer, DOUGHBOY, owned by John W. Strol, Detroit. This runabout is a craft by Hacker, powered with a six-cylinder Sterling engine and has a speed of 33 miles an hour.

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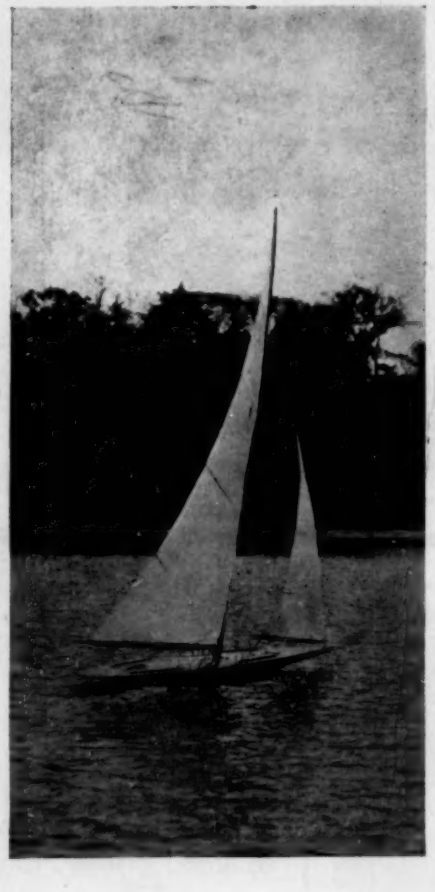
Model Yachts As Is Model Yachts

THE sport of model yachting should appeal strongly to us of these United States. Here is a sport infinite: an art one might better say, for it is not an exact science: enough only of science enters to give confidence. The charming appeal and interest lie in the elusive factors which are called in being.



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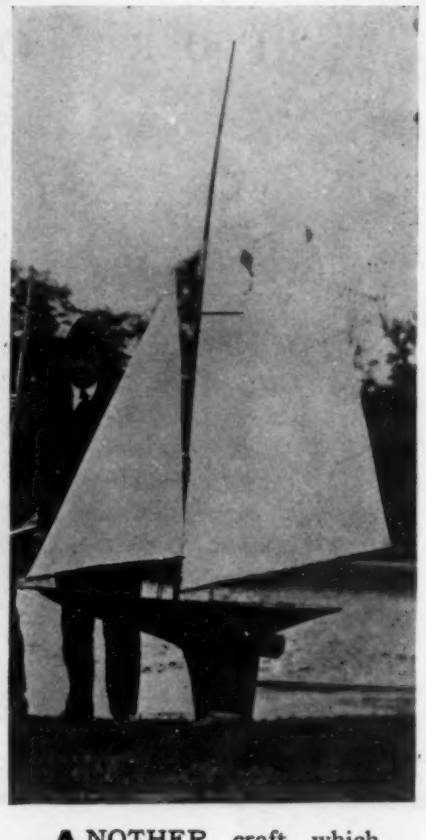
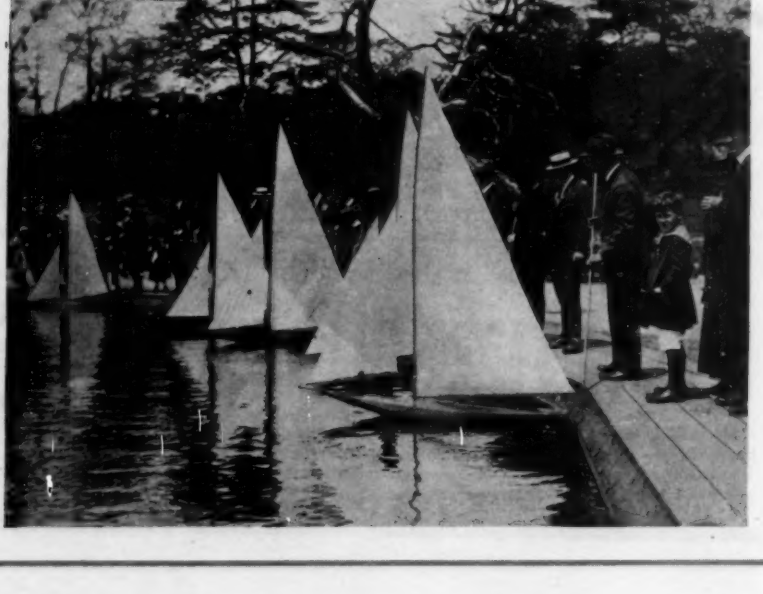
OOTUKUKUNIT is a 42-in. water line Marconi rigged craft owned by J. O. Berg, Commodore of the Central Park Model Yacht Club. She is one of the fastest, if not the fastest, sailing model yachts in the world. Mr. Berg has consistently developed this type from year to year, each year's craft lighter, as to hull and rig, each more able, each under more perfect control until the elusive ultimate seems nearly in reach.



ANOTHER craft which sails the lake in Central Park. This, *Galatea*, is owned by Howard Griffiths, secretary of the club. Far from a mere toy is a model like this.

AMONG the members of the Central Park Model Yacht Club the Marconi rig is more popular than any other. This is undoubtedly on account of the exactness with which the varying angles of these type sails with the midships line of the hull may be accomplished; for the trim of the sails of a model yacht has more to do with her accurate course keeping than the rudder has: in fact except for sailing off the wind a rudder is not needed.



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YACHTING

VOLUME XXVI
NUMBER IV

OCTOBER, 1919

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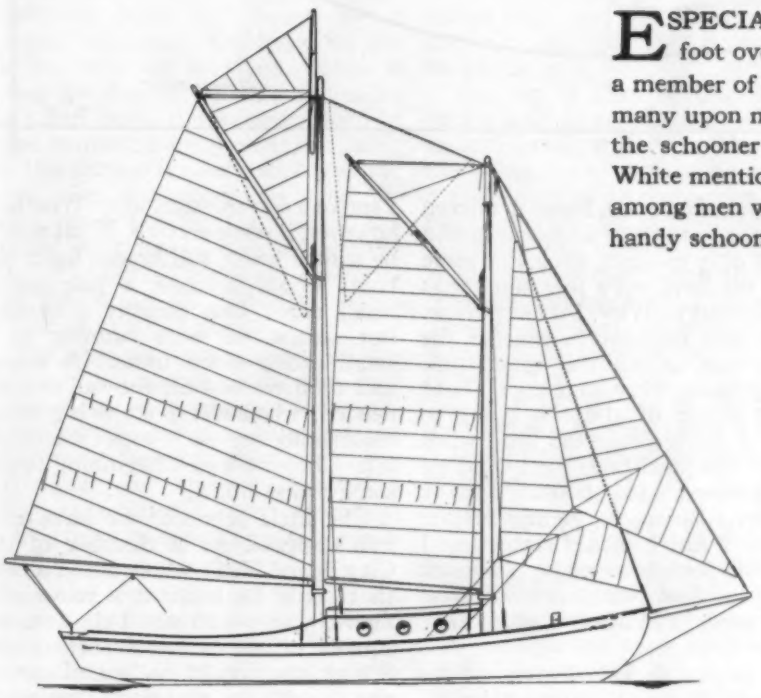
A New Class of Small Schooners



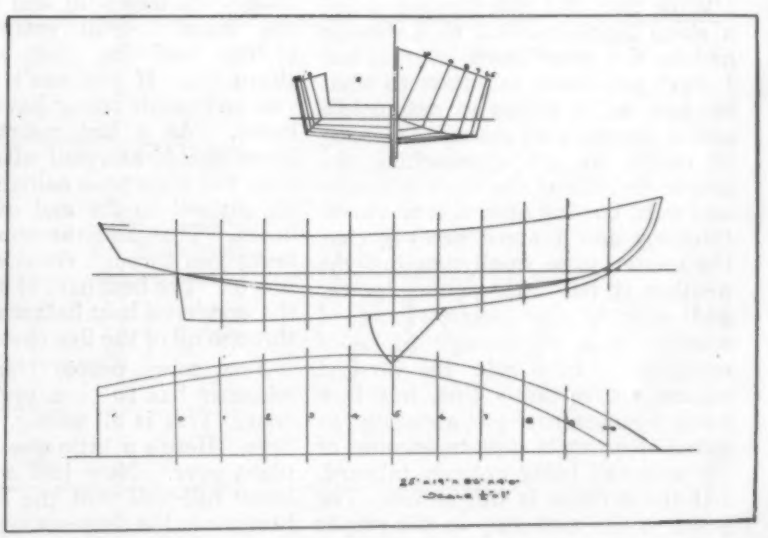
ESPECIALLY interesting are these plans of a 25 foot overall schooner designed by Mr. White for a member of the City Island Yacht Club. There are many upon many mighty good reasons for the use of the schooner rig upon a small boat. Although Mr. White mentions some doubtless still others will occur among men who have cruised under the efficient yet handy schooner rig.

By GERALD T. WHITE

EVERY real small boat enthusiast gets the schooner fever sooner or later. No matter how many cats, yawls, sloops or ketches he owns or sails upon, he longs to hold the stick of a schooner. Now there is a real logical basis for this desire. If you look at the yachting field the world over, you will find that certain countries, or sections of countries have types of yachts that are more or less distinctive to that community. Ninety-nine times out of a hundred you will find that the yachts of a certain community are of the same type as the prevalent type of commercial boat. In other words, the men who make a living from their boats, discover by a process of elimination what type of rig is best suited to the particular wind and water conditions of that section. For the yachts of that section to adopt the same species of rig, is both natural and sensible. For instance, glance at the motor yachts of the Pacific Coast and see how closely they follow the lines of their commercial boats. On the South Shore of Long Island most of the work boatmen use cat boats, big beamy critters, and the yachtsmen follow suit. This is also the case around Cape Cod.

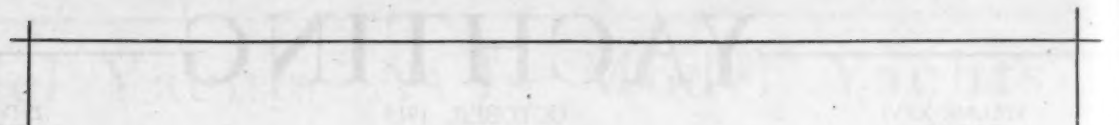
The one type of rig that is indigenous to the whole coast line of the United States, is the schooner. There is hardly a harbor on the coasts that doesn't float numerous schooners at all seasons of the year. They are used almost without exception by the fishermen who actually put to sea after their catch. Nine tenths of the lumber we use in transported in schooners. Thousands of tons of coal are delivered every year by schooners. In fact, it can be safely said that outside of the steamers, practically the entire coastal trade is carried on by schooner rigged vessels.

Let us run over the advantages of the schooner when compared with other rigs, particularly for yacht service. Let us take up the cat first. Boats of the feline species have a big advantage as far as room is concerned for they are often half as wide as they are long, but, having all the sail in one rag they are dangerous brutes in a blow, as it takes several men to properly reef a good



SIMPLICITY is the dominant note of the hull design—a simplicity which will eliminate in a large measure the expense of building.

JUST a plain everyday workable deck arrangement. No frills, no cluttersome gear scattered about due no doubt to the fact that all running rigging except the sheets belay at the masts.



sized cat boat sail. They have another sweet trick, and that is of taking charge and romping off on their own hook. I never shall forget the first time I ever sailed a cat boat alone. In my dense ignorance I let her jibe. If she had jibed in a ladylike manner, all would have been well, but the gaff and half the sail went one way, and the boom and the rest of the canvas went the other way. There was a good breeze blowing from aft, and on either side of me were flats with little or no water while directly ahead was the yacht club anchorage. I couldn't let go the stick to go forward and get the sail off without her running ashore. By the time my youthful brain solved the tangle and prompted me to lash the tiller with the end of the main sheet, we had swept majestically through the fleet, leaving havoc in our wake, and had come to rest, none too gently on the beach.

For racing, the knockabout sloop is deservedly popular, but few people advocate the rig for real sea work, for again the majority of the canvas is in one sail and reefing is a bad job. I know that Old Bill Nutting sailed a sloop single handed to Labrador and he is a great sloop booster, but I don't pay much attention to what he says, as he drives an automobile and is therefore an outcast. Getting to yawls, we are approaching the proper division of the cloth into several sails, but my objection to yawls, (Nutting and I agree here) is that the mizzen is so small that in light weather it has little driving power and only in the heaviest sort of weather is it big enough to be of much use. In a gale, the jib and mizzen are certainly fine, but how many yachtsmen go aboating in gales? Reefing is easy on account of the mainsail being entirely inboard, but the division is still unfair. The ketch is the next step in the proper direction. Here we have a mizzen large enough to be of some use, and a main of only medium size. For some reason we have very few ketch rigs in this country. Why, I do not know.

Now that we have hammered the stuffing out of all the other rigs, proving them very defective (Lord what a storm of abuse is going to fall upon my unprotected bean when some of the yawl bugs read this) we will proceed to boost Milady Schooner. Before we go any further however I feel I should state that I weigh 133 pounds ringside, but much prefer to duel with brickbats at fifteen yards, a la Mark Twain. Let's go!

Ladies and Gentlemen:—The Schooner, the finest, sweetest, handiest boat in the—One moment please, while the bouncer gives the bums rush to that member of the Cape Cat Boat Association who threw the chair cushion,—As I was about to say, the schooner has many advantages. The sails are so divided that reefing is a cinch. In a blow you can take in the foresail and go along under jibs and main. It blows harder? Douse the outer jib and single reef the main. Still getting worse? Double reef the main and set a storm jib. If you can't carry that you had much better have remained home. As a last resort however, bring the forestaysail aft and hoist it on the main peak halliards, passing an outhaul to the end of the main boom. That and the storm jib will bring you through considerable of a breeze. The best part of it all is that the wonderful boat balanced correctly through all of the five changes of sail.

Now most people think that a schooner has to be a pretty sizable boat. This is all wrong. Prove it? Sure. Here's a little one. Look the plans over. Now just a minute, I know full well that the boat shown here is not the deep sea type of which I spoke a few minutes ago. Weather, however, is comparative. What would be a nice whole sail breeze for a big boat, would be half a gale for a small one. One Sunday afternoon last season we were running in a small racing sloop under jib alone, and then we had all the sail out we needed, when we spoke a big three mast schooner with tops'l's and all set. They were just beginning to get some real sailing.

The little schooner we have here was designed for a member of the City Island Y. C. who wanted a boat that could be built at a reasonable figure, that would stand the summer squalls of the western part of the Sound, that could be hauled out on the beach on occasion, that could be handled by one man, that had accommodations for a couple of week end cruisers who didn't mind roughing it a little, that looked snappy, and was so rigged that his children could learn to handle the various sails that they in later years may be called upon to use on a big boat.

Now often we see small boats that are miniature reproductions of large vessels and in most cases they look much out of proportion. This is particularly so with the height of the cabin house above deck. Designers sometimes attempt to get full headroom in a twenty-five footer and still retain the rakish lines of a fifty foot boat. It cannot be done. When the owner gave me the order to design this little boat, it was with fear and trembling that I asked about the headroom requirements. A load was lifted off my mind when he said, "Just enough to allow me to sit upright." This I have done. The boat in consequence looks perfectly proportioned. The cabin is big enough however to allow a couple of young fellows to make quite a trip. There is neither galley nor

toilet room. The lack of the former can be remedied by purchasing any of the folding variety of mess kits and stoves. The lack of toilet facilities I will leave to the imagination. "Necessity is the mother of invention."

In order to simplify the construction as much as possible I did away with the usual companion hatch. I believe that you can crawl through the door all right. Forward of the berth space there is considerable storage space, and forward of the stores there is a chain locker separated from the latter by a partial bulkhead. Outboard of the berths, and above them, there is space for shelves. Really the cabin isn't half bad. A canoeing friend of mine turned up his nose at the cabin on this little schooner, until I wrung from him the confession that he slept on a poncho thrown on the ground and turned the canoe over on top of him. Compared with him the inhabitant of this little cabin will sleep in a ball room.

The cockpit is arranged in the conventional manner. As the floor is canvassed, it is arranged to be self-draining. Under the seats and the after deck there is space for anchors, spare gear, etc. She will steer with a tiller, as a wheel and its attendant gear is more or less of a nuisance on a small boat.

Turning our attention to the hull, we find that the boat is of the old fashioned skipjack model. There is some deadrise, but only enough to cut down pounding a little. Under way, as soon as she heels she will present a sharper section to the plane of the water than would be the case in a regular V bottom or round craft of the usual type. I have discussed the action of flat bottomed sailing boats before in these pages so there is little use in reiterating. If the boat had been designed for outside work, she would have been a round bottomed boat, but remember, she is supposed to be used in yacht weather, not fishermen's weather. The construction is fairly heavy. The planking is 7/8 in. finished and the decking 3/4 in. T. and G. stuff, canvas covered and the rest of the scantlings are in proportion. The house is of the parallel sided type, giving a maximum of deck room on the sides; an important point when you have to go forward and reef a sail. Another feature is the bulwark all around the deck. This is five inches high, and is surmounted by a cap. A rail like this is worth its weight in gold.

The rig is that of a pole mast yacht, and is complete even to the maintopmast stays'l. This latter sail is set flying, and while it hasn't a great deal of driving power, it will help considerably, and also teach one the use of the canvas. All halyards belay at the mast, but the sheets come aft within reach of the skipper. The jib will be fitted with a downhaul so that all sails can be doused from on deck.

L. O. A., 25 ft. 0 in. L. W. L. 19 ft. 0 in. Beam 8 ft. 6 in. Draft 4 ft. 0 in.

Inside ballast of about 1000 pounds will be carried.

S. Cs For Sale!

Here is a chance to purchase at one whack a craft which may be converted into a tip top motor yacht or an efficient work boat and to which is attached the added value, if only sentimental, of being a relic of the Great German War.

A LARGE quantity of the 110 foot sea-going motor boats used by the Navy during the war are being offered for public sale by the Navy Department. These submarine chasers have wooden hulls, built somewhat on the lines of a trawler so that they may stay out in heavy weather. Many of these chasers have been able to cross the Atlantic. Six of them recently raced from Bermuda breaking the previous motor boat records.

The engine equipment of 660 H. P. is very powerful, consisting of three 220 H. P., 6 cylinder heavy duty gasoline engines. When cruising it has been customary to use only one or two engines. It is believed that some purchasers will remove one or more of the engines for use in other vessels.

These boats are now laid up in many of the ports along the Atlantic, Gulf and Pacific coasts. Their constant use during the war makes them well known to shipping interests, fishermen and harbor boat men. It is believed that many purchasers will use these powerful launches for tow-boats.

Bids for these boats will be opened at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., at noon, October 8, 1919.

Several motor yachts taken over from private owners during the war will also be offered for sale, including:

Shrewsbury, a 94-foot motor yacht 14½ knots, 250 I. H. P. Standard engine, 6 cylinder.

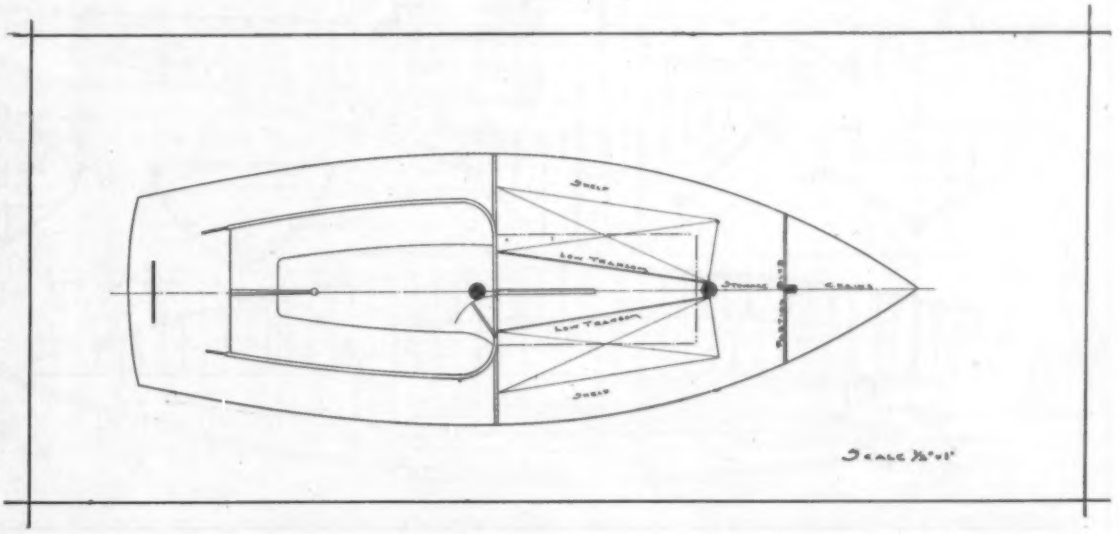
Shark, a motor yacht, 69 feet long, 12 knots, 100 H. P., 6 cylinder standard engine.

Marie, a 65-foot motor yacht, 14 knots, 250 H. P., 6 cylinder Speedway engine.

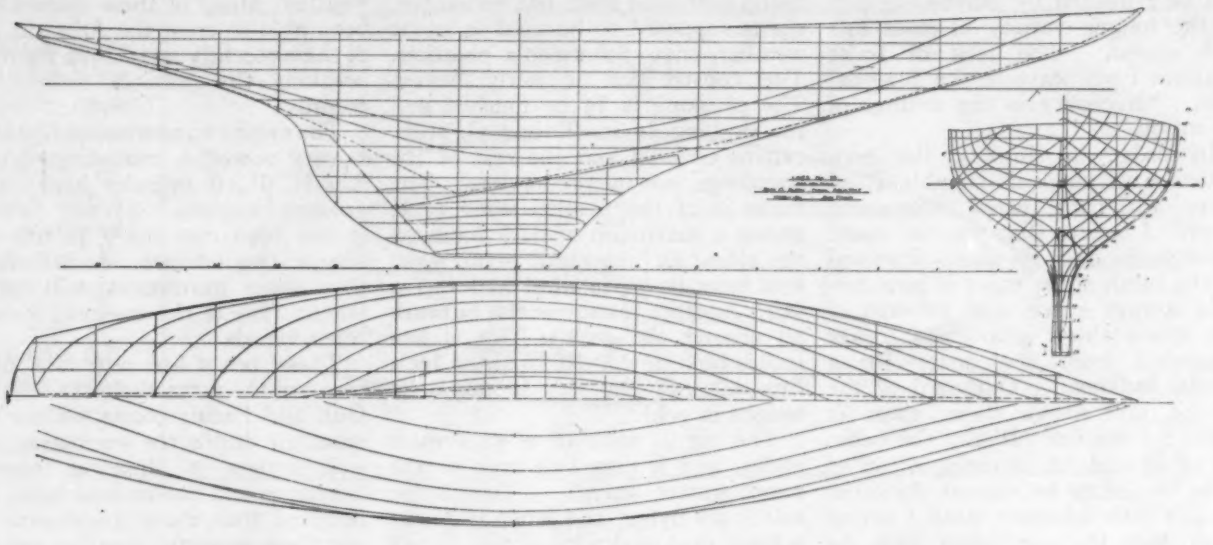
Shur, a 70-foot motor yacht, 160 H. P., with 4 cylinder Murray and Tregurtha engine.

Jeanette, a 44-foot motor patrol, 40 I. H. P., 4 cylinder engine.

These motor boats will be sold at the Bureau of Supplies and Accounts, Navy Department, Washington, D.C., October 15, 1919, at noon.



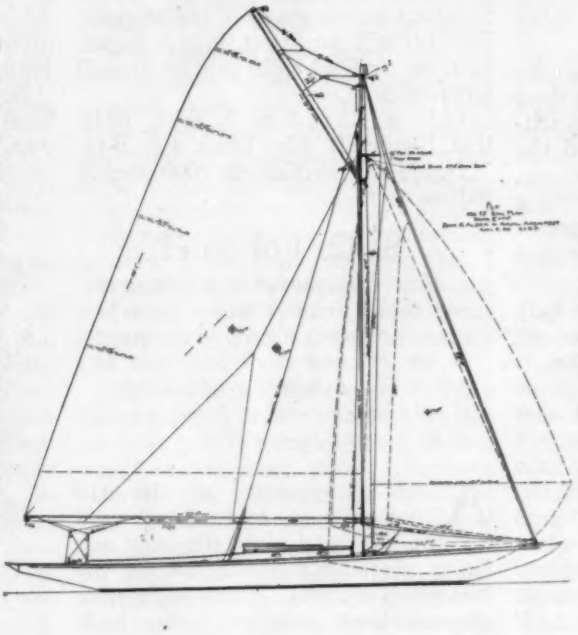
TWO can cruise in comfort aboard a little craft like this. There appears to be plenty of room below decks for the various items of duffle always requisite for the complete contentment of the cruising owner which is sufficient, except for the ice-cream-pants type of yachtsman, who usually is a better spectator than participant to the sport spelled y-a-c-h-t-i-n-g.



PAM, *A Successful R Boat*

THE "R" boat **Pam**, is owned by Ex-Com. Harry A. Parsons of Cleveland, O. She has been successfully raced this season on the Great Lakes and has won the championship of the Cleveland Yacht Club.

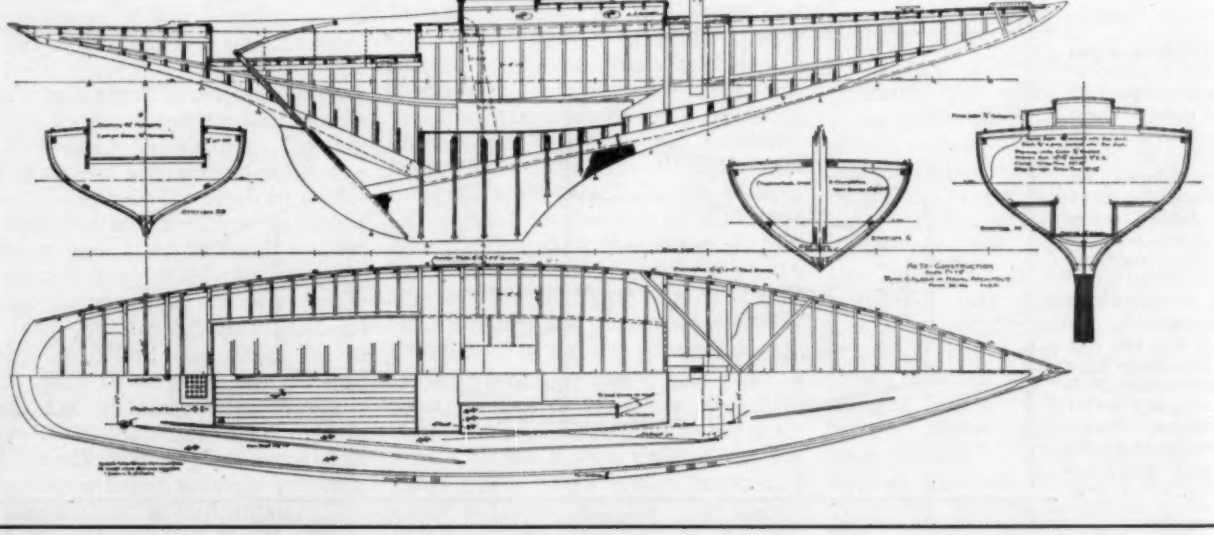
Pam is a splendid illustration of the wholesome type of boat produced by the Universal Rule. She is fast and able in all weathers, and though not fitted for cruising there is plenty of room below which could be utilized for accommodations.



BUILT three years ago from designs by J. G. Alden **Pam** has not felt the strain of hard racing.

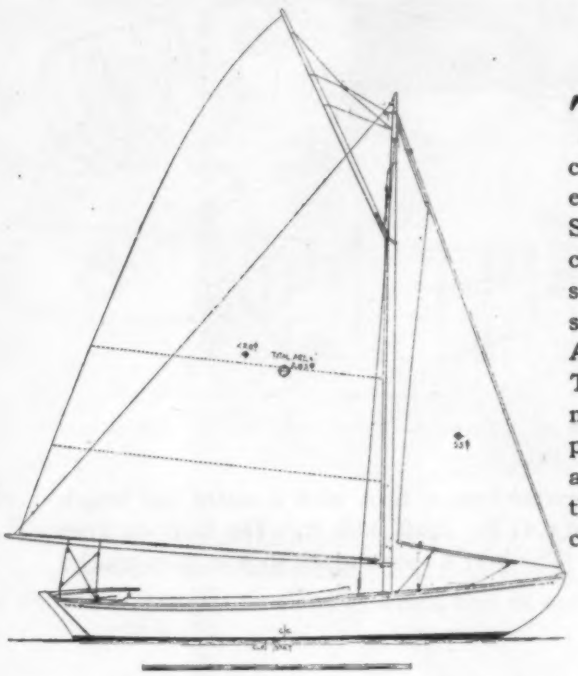
The yacht's dimensions are as follows: L. O. A. 37 ft. 6 in., L. W. L. 24 ft. 2½ in., beam 5 ft. 7 in., draft 5 ft. 7 in., her rated sail area is 585 sq. feet.

The lines herewith of **Pam** are the first that have ever been published of Mr. Alden's "R" boats.



An Anglo-American Comparison

The English point of view as published in a recent number of THE YACHTING MONTHLY



THE sail area of the American craft ***Merla,*** is smaller than that of the Solent day boat, comprising: main sail 228 sq. ft. and stay sail 55 sq. ft. A total of 283 sq. ft. The head of the main sail is not peaked excessively and approximates the average American practice.

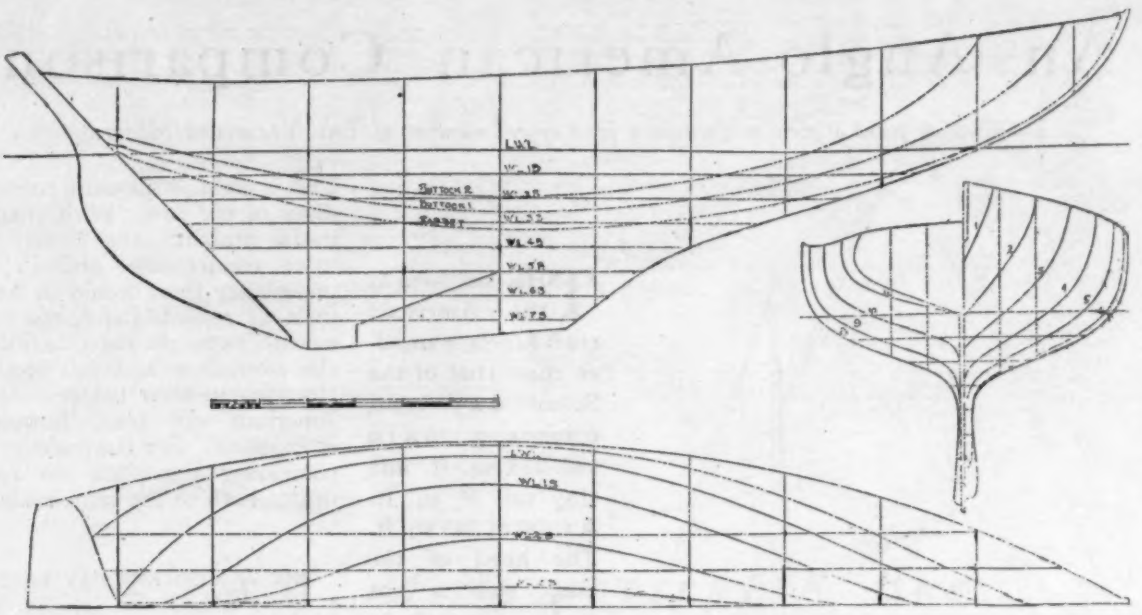
NO. 1, AN AMERICAN DAY BOAT

NOW that this country and America have gone a-courting our readers will appreciate the design sent to us by John G. Alden, of Boston, of a boat designed by him for Mr. F. C. Fletcher. *Merla* is what Americans call a knockabout boat, a day-boat in our phraseology. She has been well built, and cost, with a lead keel of 1,700 lbs., $1,600, which is £320 at $5 to the £, unfortunately now a fictitious rate with the exchange standing as it does. The boat therefore is cheap, and the price demonstrates the leeway we have made in costs these last five years, for there is evidently little between the two rates to-day. What is more interesting, however, is a comparison between the boat and a Solent Day-boat recently designed by Mr. F. W. Livesey (No. 2). This is a typical Solent boat of normal design, with good bilge, moderate overhangs, and ample sail plan. Comparing the two designs we find the English boat has a greater overall length, is slightly less on the waterline, with about five inches less beam, and lighter draught. She has, however, more bilge and displacement and balast, with a larger sail spread to drive it. Generally speaking the Solent boat is perhaps the more commodious of the two. With greater initial stability she should be more comfortable, and in all probability there would be little in it as regards handiness. In smooth water she must be faster, the overhangs and full section throwing in their balance. The American sail plan, however, is excellent. For convenience in comparing the plans we have drawn both to the same scale.

NO. 2, A SOLENT DAY BOAT

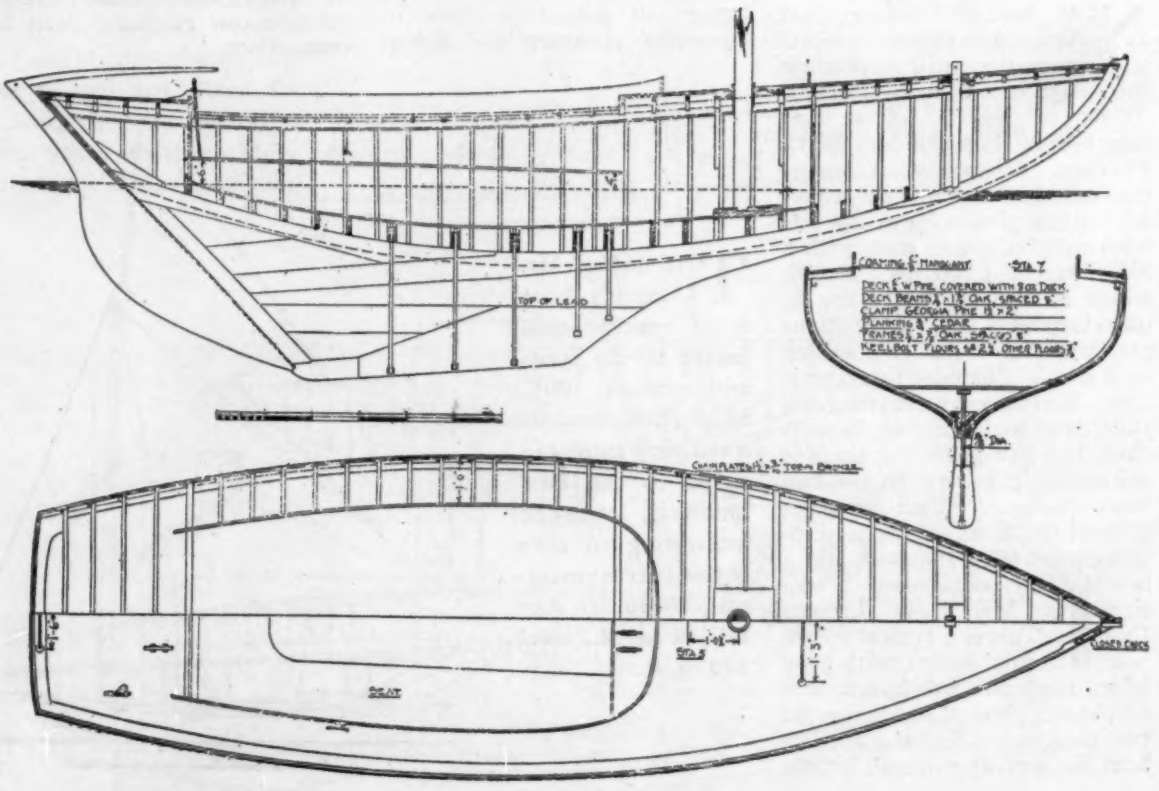
Again referring to the Solent boat, in view of the proposed restrictions of the New National Classes, it is interesting to consider a design prepared previous to their publication. The boat shown was designed with an open mind, the sole object being to produce a fast and handy day-boat for general use on fairly sheltered waters. Mr. Livesey has produced a good model with particularly easy and useful section. The design is moderate in every way, and therefore provides an excellent basis for comparison.

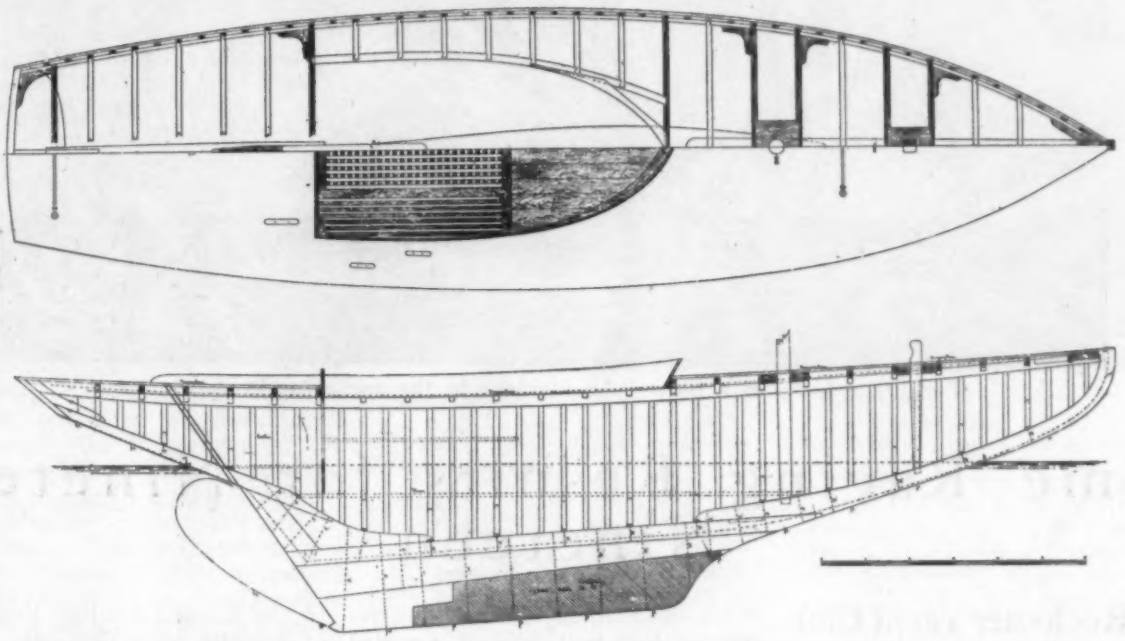
THE gaff of Mr. Livesey's boat is of nearly equal length to the boom and peaked 100% all of which provides a sail very similar in shape to the Bermuda rig. It may be interesting to note the sail areas: mainsail, 270 sq. ft., stay sail 56 sq. ft., total 326 sq. ft.



THE lines of Mr. Alden's **Merla** show a wholesome type of boat with a water line length of 18.08 ft., a length over all of 23 ft., beam 6.92 ft., draft 4.08 ft. The buttock lines are easy and the water lines forward hollow. The keel is short, much shorter than that of the English boat.

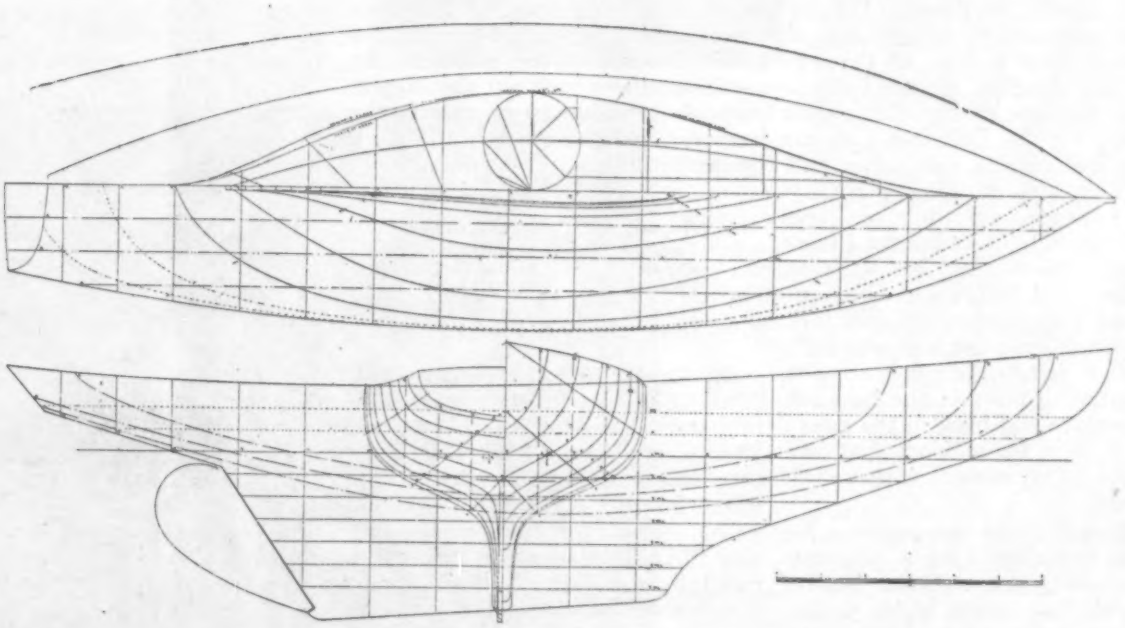
THE details of construction of the two craft are dissimilar, notably in the matter of floors and keel fastenings. The floors of the Alden designed boat are of wood; those in the English craft of metal, Compare also the direct way of the former and the indirect way of the latter for securing the lead to the floors and frames.





THE craft of the Solent, which by the way is 25 ft. overall, 18 ft. on the water line, 6.33 ft. wide, with displacement 1.82 tons, carries full water lines forward and rather bluff buttocks. Lateral plane is provided by a long keel of somewhat less draft than that of the American boat.

THE scantlings of Mr. Livesey's boat are heavier than those of *Merla*, especially the frames and deck beams, and there is a nicety about their mortising into clamps and deadwood which is lacking in the American craft. A comparison of the deck and cockpit arrangement of the two boats is especially interesting, also the placement of the travellers cleats, etc.



Turning a buoy in a blow. An incident in the racing at Rochester.

Some Racing Results for Nineteen Nineteen

The Rochester Yacht Club

THE summer of 1919 will go down as the best yachting season at the Port of Rochester on Lake Ontario since the days of the big Canada's Cup races in 1905 and 1907. With two cruising races to Sodus Bay, thirty miles away, a Grand Squadron Run sixty miles across the lake to Cobourg, Ont., ten Star boat races over the club course, two Veteran cruiser special matches and a day's Circuit racing and regatta of the Lake Yacht Racing Association in which nearly thirty yachts participated, followed by a dash to Cobourg of the L. Y. R. A. fleet, there has been plenty of sport to engage the attention of the yachtsmen. In addition to this the Genesee Dinghy Club, a junior sailing organization of Rochester, with a fleet of twenty-five sailing dinghies, rounded out a schedule of some sixteen club races, contested for the Douglass Cup on Toronto Bay against the pick of half a dozen clubs in the Dominion City with a fourteen footer, lost out, and then successfully defended the Emerson Cup against the Canadians at Rochester. All told, about one hundred and fifty yachtsmen and fifty boats were represented in the season's fun which testifies strongly to the fact that with most of the boys out of the service and back in the game, yachting is in for a boom that will carry the sport forward with a rush next year.

The first event of the season on the Rochester Yacht Club's schedule was a cruising race to Sodus Bay on Memorial Day with eight yachts entered. Fickle winds baffled the skippers all the way down and four of the racers finally put on power which disqualified them. The remaining four that finished, rounded the light as follows:

Yacht	Owner
Cheeta	Ross Wishart
Anona	John Powers
Tantrum	Leslie Block
Weno	H. E. Meier

The Grand Squadron Run to Cobourg, Ont., on the night before the Fourth of July brought out practically the same fleet with the old Canada's Cup champion, *Iroquois* as an added starter. Like all the cruising races, this was a handicap affair and despite the big time allowance she had to overcome, *Iroquois* made a killing race of it and fetched the finish line sixty miles from the start in six hours and forty-five minutes, beating out her nearest rival by over three hours. *Ripple*, *Tantrum* and *Cheeta* breezed in one minute apart and the others took up the biggest part of the Glorious in making the harbor, having overstood the mark by many miles. The finish:

Yacht	Owner
Iroquois	Frank T. Christy
Tantrum	Leslie Block
Ripple	Lorenzo G. Mabbett
Cheeta	Ross Wishart
Caroline	Wesley Muhlbeyer
Nox	B. E. Meier

On August 2nd the Circuit races of the Lake Yacht Racing Association started at Hamilton, Ont., and after a day's racing at that port, there was a cruising jaunt to Toronto where another day's sport was enjoyed. The fleet then crossed the lake to Olcott Beach and from there raced to the Port of Rochester, a distance of sixty-five miles. *Nutmeg III*, the famous Class P boat that used to race on the Sound, and which is now one of seven P boats attached to the Royal Canadian Yacht Club of Toronto, won this long distance race by three minutes. Up to this point no Rochester yachts were entered in the Circuit races, but on August 7th, the day of the regatta here, the Rochester Yacht Club's fleet joined in and swelled the ranks including half a dozen or more of the Stars which put on a special match. In six divisions the Circuit racers were sent away over a nine mile triangle, with twice around for Classes M and P. The Canadians scooped in the lion's share of the prize money by reason of having bigger and more up-to-date racing craft. For a city that has lifted the Canada's Cup and the only one that

Otis J. Nagle's 14 foot Genesee dinghy

has ever successfully defended it and that twice, and which still harbors this championship trophy of the Great Lakes, Rochester made a sorry showing in point of numbers and appearance in this regatta. Five of the Toronto P boats were entered in this race, among them the little *Seneca* that electrified the fresh water salts in 1907 when as the Rochester Yacht Club's defender, she won three straight races against the Toronto challenger *Adele*. *Seneca*, now flying a Canadian burgee, distinguished herself in the circuit clash by quitting cold, as in the gradual improvement of the class she has become a back number. Class R brought out four of these sleek racers with the Watertown of the Crescent Yacht Club, Watertown, N. Y., a winner by a good margin.

Considerable interest attached to the Veteran Class over twenty-five feet which involved the two ancient rivals of 1905, *Iroquois* and *Temeraire* in another scrap after fourteen years. *Iroquois* also had to fight *Zoraya* which defeated her in 1906 for the Fisher Cup, in this race and she had to take the wash of both of the Canadian boats before the argument was over. The time:

CLASS M—START 2 P. M. COURSE, TRIANGULAR, 18 MILES

Yacht and Owner	Finish
Aggie, R.C.Y.C.—C. C. Marlatt	5 37
Haswell, R.C.Y.C.—Aemilius Jarvis	5 46

CLASS P. START 2:05 P.M. 18 MILES

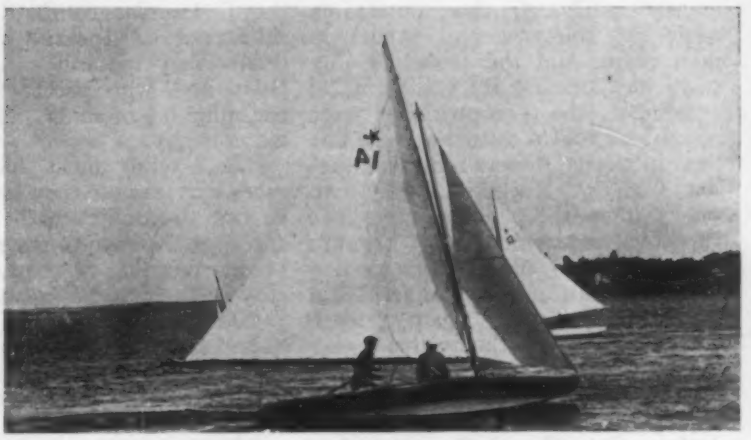
Berenice, R.C.Y.C.—Norman Gooderham	5 24
Stranger, R.C.Y.C.—Geo. Alexander	5 24 40
Nutmeg III, R.C.Y.C.—E. K. M. Wedd	5 25 30
Crusader, R.C.Y.C.—T. K. Wade	5 34
Seneca, R.C.Y.C.	Did Not Finish.

CLASS R. START 2:10 P.M. 9 MILES

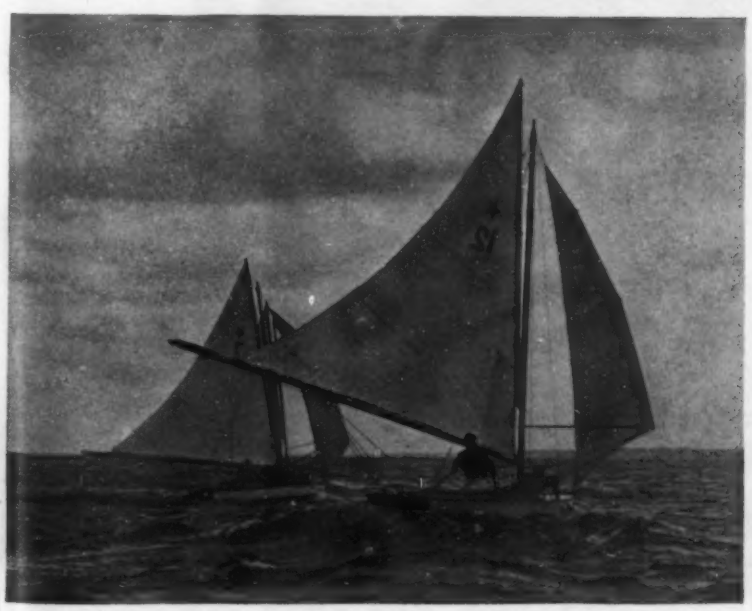
Watertown, Crescent Y. C.—W. C. Borden	4 21
Hoyden, Crescent Y.C.—E. S. Lansing	4.23
Nirwana, R.C.Y.C.—J. G. Morrow	4 27
Crescent, Crescent Y.C.—	4 30

VETERAN CLASS UNDER 25 FEET
START 2:15 P. M. 9 MILES

Tantrum, Rochester Y.C.—Leslie Block	4 24
Sylvia, Kingston Y.C.—J. Casey	4 23 05



L. S. Mabbett's craft is the winner of the 1918 series of the Star Class of the Rochester Yacht Club.



Iroquois owned by Frank T. Christy won the Grand Squadron Run to Cobourg, Ont.

Star boats close reefed and going strong.

Cheeta, Rochester Y.C.—Ross Wishart | 4 44
Sylvia allows *Tantrum* one minute 30 secs.

VETERAN CLASS OVER 25 FEET.
START 2:20 P. M. 9 MILES

Temeraire, R.C.Y.C.—A. B. Bowes	4 12
Zoraya, R.C.Y.C.—C. D. McCreery	4 13
Iroquois, Rochester Y.C.—Frank T. Christy	4 14
More Trouble, Rochester Y.C., F. Gooding	

In the Star Class racing, the boats are competing on the point system and while the last race will not be run off until late in September, it seems practically certain that Lorenzo G. Mabbett will win the season's silver trophy by a substantial margin as he did last year. He was at the helm of *Iroquois* in 1905 when she defended the Canada's Cup against the *Temeraire* of Toronto and seems to be just as consistent a winner with small sloops as he was with the big ones.

In holding international races between sailing dinghies, the Genesee Dinghy Club of Rochester and the Lake Skiff Sailing Association, which is composed of the Toronto Canoe Club, Queen City Yacht Club, the Royal Canadian Yacht Club, the Alexandra Yacht Club and National Yacht Club, all of Toronto, have promoted interest in these little craft that is doing wonders for the sport. Although holding mostly to the twelve foot dinghy design of Charles D. Mower, the Genesee Dinghy Club last winter challenged the L. S. S. A. for an international race between fourteen footers which have held sway for years at Toronto. Mr. James Douglass, a Toronto builder put up a handsome cup for this race and out of two fourteens built by the challengers, one was sent over for a crack at the Canadians. The latter only had about a hundred or so to pick from and on August 1st the first race was sailed. George Roat handled the Rochester boat while Walter Windeyer of the Royal Canadian Yacht Club piloted the defender. It required but two straight races to repel the American

invasion although the contestants were but thirty seconds apart in each event, and the Douglass Cup stays in Canada. By the terms of agreement, the Toronto boys were obliged to hold a return match, this time in twelve footers for the Emerson Cup at Rochester, and two weeks later the whole small boat yachting fraternity of Toronto swooped down determined to bag the American silver and make a general clean up. Again George Roat, who knows the twelve footer from A to Izzard, was at the stick and in two smashing races, completely swamped the Canadian skipper Arthur Colwell, winning the first by over eight minutes and the second by better than four minutes. Honors are now even and next summer they are going at it again and with plenty of backing on both sides.

Orienta Yacht Club

MR. JOSEPH BISTER, Secretary of the Orienta Y. C., says in a letter to the editor: "I think the list (The Racing results for 1919), you intend to publish will show the fallacy of each club holding races of their own as by doing this they hurt the open races under the Long Island Sound Yacht Racing Association and therefore the whole sport of sailing.

"If there are to be the maximum number of boats in commission all clubs must work on the lines laid out by this organization.

"When owners find that time after time they go miles to get a start and they find no class competitor and must take a sail over their interest lags and finally they too will join the Motor Bugs and who wants to decrease the numbers of sailer (all too small) we now have.

"If a club must have private races why cannot they have them so as not to conflict with the regular races, or else race to the starting line on the morning of the race and not stay in their harbor all day.

"The championship of Long Island Sound used to mean something but now one may be champion and the best boat of the class may have never sailed in an open race.

"Yours for the best interests of yachting."

Open annual race Orienta Y. C., June 14, 1919, Race for Commodore's Cups

SOUND SCHOONERS
Allure—E. P. Alker, 1st
Moira—Clarkson Cowl
Algol—W. Fuller

N. Y. 30-FOOT CLASS
Lena—Ogden Reid
Minx—T. S. Clark
Mispah—D. Richardson
Alera—F. W. Belnap
Adios—Fred Richards

LARCHMONT INTER CLUB
Whiff—H. Parker
Sirene—H. W. Fraser

SONDER CLASS
Mingo—H. T. Hornidge
Tern—W. T. Hornidge

STAR CLASS
Altair—E. V. Willis
Hydra—C. E. Hyde
Saturn—G. W. Elder
Little Dipper—G. A. Corry
Snapper—A. Iselin 2nd
Gemini—L. M. Pirie
Little Bear—A. Walker

BELL CATS
Three Bells—E. F. Delavante
Seven Bells—B. C. Pheiffer

ORIENTA O. D.
Thane—A. L. Snow
Salty—Haggerty Bros.

A. Y. C. DRIES
Yan—S. Faille
Gnat—Mary Brooks

HANDICAP, 8ST DIV.
Skid II—H. L. Curry
Sachem II—B. W. Metcalf

HANDICAP 2ND AND 3RD
Sally IX—A. E. Black
Arcadian—F. E. Raymond

ORIENTA O. D., AUG. 9TH.
Thane—A. L. Snow
Scot—A. Cameron
Alice—A. K. Griffen
Salty—Haggerty Bros.

Lake Geneva Y. C.

THE Lake Geneva Yacht Club held the Sheridan Race on August 30. The results were as follows:

Sheridan Regatta

On September 1, 1919, the Countiss Race took place. Six Class "A" boats participated, and *Tom Boy*, owned by Clayton Mogg, was the winner. Dr. Otto. L. Schmidt, owner and skipper of *Senta*, was a close second.

START, 2:24 P. M.

Yacht and Owner	Finish
Tomboy—Clayton Mogg, 1-31	3-55
Le Bell II—W. N. Palouze, 1-33-20	3-57-20
Fan-C—A. W. Craven, Jr., 1-37-55	4-01-55
Geneva—Mr. Spencer	Capsized
Auaucoma—M. A. Healy. Skipper, Dr. O. L. Schmidt	Disabled

THE Larchmont Inter Club Class boat **Sirene** flying the burgee of the Manhassett Bay Yacht Club and owned by R. W. Fraser winning from **Whiff** at the New York Athletic Club regatta of August 2nd.

SIRENE, like her sisters of the Larchmont Inter-Club Class is fast on all points of sailing.

	Finish	Elapsed Time
Moira—Donald Cowl	5 12 02	2 07 01
Hydra—Chas. E. Hyde	5 12 31	2 07 32
Maia—B. L. Linkfield	5 13 23	2 08 23
Saturn—Geo. W. Elder, Jr.	5 13 46	2 08 46
Mars II—L. A. D. Percival	5 13 56	2 08 56
Aria—Geo. Abbott	5 14 27	2 09 27
Little Dipper—Geo. A. Corry	5 17 29	2 12 29
Little Bear—Allen Walker	Did Not Finish.	

STAR CLASS, DIVISION B

START, 3.10

Yacht and Owner	Finish	Elapsed Time
Aquilla—Gordon Curry	5 17 38	2 07 38
Vega—R. G. D'Onech	5 19 58	2 09 58
Banshee—M. Egerton	5 21 06	2 11 06
Neptune—W. Teves	5 21 38	2 11 38
Polaris—W. D. Wright	5 23 24	2 13 24
Dione—Geo. A. Duerr	5 24 21	2 14 21
Starlight—Archibold Nesbit	5 25 03	2 15 03
North Star—G. L. Simonson	5 26 14	2 16 14
Southern Cross—A. Knapp, Jr.	5 28 27	2 18 27
Big Dipper—J. R. Robinson	Did Not Finish.	
Draco—G. Arthur Schieren	" "	

SKID owned by Howard L. Curry and sailing under the colors of the Manhasset Bay Y. C. is 43 feet long over-all, has a water line length of 27 ft., a beam of 8 ft. 6 in., and draws 6 ft. of water. She is a Gardner designed boat and was built by Wood and McClure.

Manhasset Bay Yacht Club

Sunday Regatta, June 15, 1919

STAR CLASS, DIVISION A

START, 3.05

Yacht and Owner	Finish	Elapsed Time
Saturn—Geo. W. Elder, Jr.	5 09 33	2 04 33
Altair—Edw. V. Willis	5 09 49	2 04 49
Taurus—W. L. Inslee	5 10 16	2 05 16
Little Dipper—Geo. A. Corry	5 10 37	2 05 37
Hydra—Chas. E. Hyde	5 11 20	2 06 20
Maia—B. L. Linkfield	5 11 35	2 06 35
Mars II—L. A. D. Percival	5 11 49	2 06 49
Shooting Star—S. Shether	5 13 03	2 08 03
Snapper—Adrian Islin II	5 15 05	2 10 05
Little Bear—Allen Walker	Did Not Finish	
Aria—Geo. Abbott	" "	

STAR CLASS, DIVISION B

START, 3.15

Yacht and Owner	Finish	Elapsed Time
Aquilla—Gordon Curry	5 10 26	1 55 26
Half Moon—T. R. Pell	5 10 52	1 55 52
Hika—G. L. Simonson	5 11 00	1 56 00
Banshee—D. McLean	5 11 08	1 56 08
Athena—A. V. Fraser	5 14 32	1 59 32
Southern Cross—A. Knapp, Jr.	5 17 28	2 02 28

Sunday Regatta, July 6th

STAR CLASS, DIVISION A

START, 3.05

Course:—Manhassett Bay Yacht Club

Yacht and Owner	Finish	Elapsed Time
Taurus—W. L. Inslee	5 11 20	2 06 20
Altair—Edw. V. Willis	5 11 27	2 06 27
Snapper—Adrian Iselin, 2nd	5 11 31	2 06 31
Snapper—Adrian Islin II	4 30 09	1 25 09
Moira—Donald Cowl	4 30 57	1 25 57
Saturn—G. W. Elder, Jr	4 31 08	1 26 08
Hydra—C. E. Hyde	4 31 12	1 26 12
Maia—B. L. Linkfield	4 32 12	1 27 12
Mars II—L. A. D. Percival	4 32 43	1 27 43
Aria—Geo Abbott	4 32 48	1 27 48
Little Dipper—Geo. A. Corry	4 35 16	1 30 16
Little Bear—Allen Walker	4 36 06	1 31 06

STAR CLASS, DIVISION B

START, 3.10

Yacht and Owner	Finish	Elapsed Time
Aquilla—Gordon Curry	4 35 31	1 25 31
Vega—R. G. D'Oench	4 37 12	1 27 12
Banshee—Edgerton & McLean	4 38 28	1 28 28
Neptune—F. W. Teeves	4 38 52	1 28 52
Polaris—Carroll Alker	4 39 25	1 29 25
Dione—G. A. Duerr	4 39 35	1 29 35
Starlight—A. Nesbitt	4 41 48	1 31 48
North Star—G. L. Simonson	4 42 27	1 32 27
Southern Cross—A. Knapp, Jr.	4 42 58	1 32 58
Big Dipper—J. R. Robinson	Did Not Finish.	
Draco—A. G. Schieren	" "	

(*Continued on page 161*)

HANDICAP CLASS

START, 3.00

Yacht and Owner	Finish	Elapsed Time	Correct'd Time
Sirene—R. W. Fraser	4 25 12	1 25 12	1 13 35
Acadian—F. E. Raymond	4 26 46	1 26 46	1 16 21
Comet—C. Vanderbilt, Jr.	4 25 55	1 25 55	1 16 42
Mignon—A. C. Fox	4 26 12	1 26 12	1 17 23
Nadia—J. C. Piene	4 27 17	1 27 17	1 17 40
Zingara—C. W. Atwater	4 20 10	1 20 10	1 20 10

Captain's Island Race, July 27, 1919

STAR CLASS

START, 9.20 A. M.

	Yacht and Owner	Finish	Elapsed Time
1.	*Altair*—E. V. Willis	6 18 37	8 58 37
2.	*Saturn*—G. W. Elder, Jr.	6 23 08	9 03 08
3.	*Snapper*—Adrian Islin II	6 23 31	9 03 31
4.	*Taurus*—W. L. Inslee	6 25 56	9 05 56
5.	*Little Dipper*—Geo. A. Corry	6 32 04	9 12 04
6.	*Hydra*—C. E. Hyde	6 36 07	9 16 07
7.	*Big Dipper*—J. R. Robinson	6 37 28	9 17 28
8.	*Aria*—Geo. Abbott	6 40 19	9 20 19
9.	*Mars II*—L. A. D. Percival	6 43 05	9 23 05
10.	*Banshee*—Edgerton & McLean	6 44 04	9 24 04
11.	*Little Bear*—Allen Walker	6 53 22	9 33 22
12.	*Aquilla*—Gordon Curry	7 29 32	10 09 32
13.	*Southern Cross*—A. Knapp, Jr	7 30 35	10 10 35
14.	*Cynosure*—H. T. Kingsbury	7 42 22	10 22 22
15.	*Maia*—B. L. Linkfield	Did Not Finish.	
16.	*Vega*—R. G. D'Oench	" "	

Sunday Regatta, August 10, 1919

STAR CLASS, DIVISION A

START, 3.05

Yacht and Owner	Finish	Elapsed Time
Altair—E. V. Willis	4 29 34	1 24 34
Taurus—W. L. Inslee	4 29 55	1 24 55

Acadian owned by F. E. Raymond

At top speed the bow wave is small and the wake little

Cigarette, a Cruiser of Great Speed

Each year sees cruising craft of higher speeds, each year sees a concentration of large power with ever reducing weight and dimensions, each year the internal combustion motor becomes more and more the engine of universal use for it is the engine which has made possible not only the high speed yacht but the airplane, and the submarine. In a very near to-morrow internal combustion motors will propell the navies of the world.

ONE of the fastest, if not the fastest, express cruisers afloat is *Cigarette* a V-bottomed craft which has shown a speed of 33½ miles an hour.

The V-bottomed boat has developed from a modest little runabout of nine or ten years ago into one of the most popular power boats built to-day, and this is undoubtedly because the V-bottomed model has proven itself the equal in sea-going ability of the round-bilge boat and the better of the two in speed qualities. The fast cruiser is becoming more in demand every season, and every season sees faster boats at this type and larger ones.

Cigarette just completed from plans by William H. Hand, Jr., for L. Gordon Hammersley, is a craft of this kind. Her overall length is 55 ft. and with a width of 11 ft., a world of room is found below. The motor room is placed amidships and all controls are brought to the bridge deck between the raised deck, under which is a stateroom, lockers and toilet room, and after cabin house, containing the power plant, crew's quarters and galley. The accommodations are especially comfortable for this type of boat, and, with a large awning-covered cockpit aft well protected forward by a windshield, the craft offers all the comfort possible in a boat of this size.

Honest, *would* grape juice do?

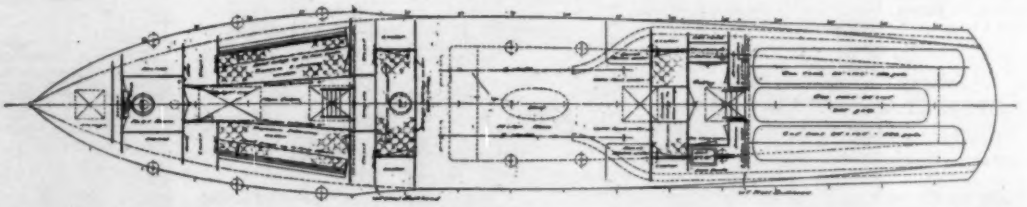
WE have heard of dry countries and wet, of dry ships and wet ships, and of dry navies and wet navies. To me there was something fitting, something homely and of the sea, in the signal that went out on the signing of Peace, "Issue of rum to splice the mainbrace to be extended to all ships under the White Ensign where it can be arranged by the S. N. O."

I wonder what the teetotal equivalent is for this!

* * *

Talking of dry navies too, Vice Admiral Sims had occasion during the war to report in appreciation of a certain R. N. V. R. officer who had done some praiseworthy rescue work on the occasion of the sinking of the *Leinster* by an enemy submarine, whereby the life of a highly respected and important U. S. Naval officer was saved at the last gasp almost. The report was endorsed by another U. S. Naval officer, who wrote, "Fortunately the M. L. had some whisky on board which in the absence of medical attendance under the conditions, was very much appreciated. Captain —— was so exhausted that he could not drink, but when his lips were moistened with a little whisky his condition was perceptibly improved."

The Yachting Monthly

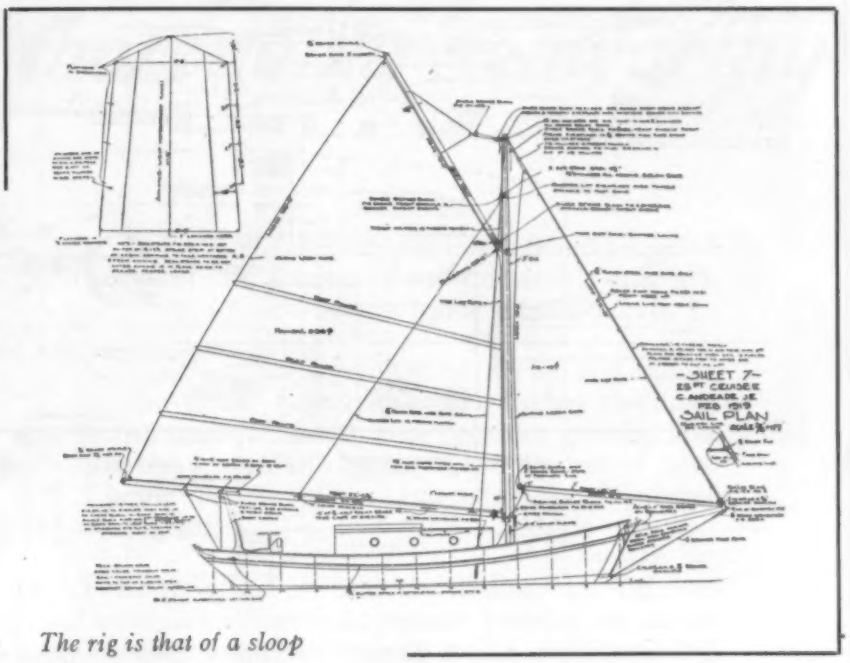


COMFORTABLE living quarters as well as speed are a feature of Cigarette.

Twenty-Five Foot Cruiser—*Spray* Model

C. ANDRADE, JR.

(Continued from September Yachting)



The rig is that of a sloop

SHEET 5, ARRANGEMENT

THE interior arrangement of this boat is closely modeled after my whaleboat *Caroline A* which has had her sixth season of trial and use. The present design shows several improvements over the *Caroline A*. In the first place, the beam of the boat permits of a much larger shelf area than in the whaleboat. Also the arrangement of the shelves is better, as there is only one large shelf over the gasoline tank. This shelf need not be disturbed when filling the tank, as there is a small opening left over the tank fill. This is clearly shown on the lower half of the arrangement plan.

The tanks in the way of the seat offer an interesting novelty, as they are built to the shape of the boat, and have a nosing around the top the same height as the nosing on the wooden shelves, thus giving a continuous shelf line from one end of the boat to the other. The starboard tank is composite, carrying 8 gallons cylinder oil, 3 gallons alcohol, 3 gallons kerosene, and 11 gallons water.

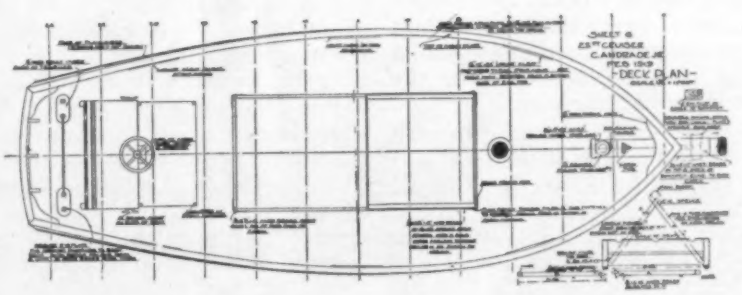
At each end of these tanks in the way of the seat are riveted sockets into which bolts fit. These bolts are fastened to a 1½ in. spruce strip at each end of the seat, and permit the seat to be pivoted forward on the forward sockets without lifting the seat bodily. This is a great convenience when starting the engine.

The seat forms the first step up from the cabin to the deck. The back of the seat is hinged forward, so that even while the seat is in place, the engine may be examined and oiled. The step over the engine is hinged to lift up against the after cabin bulkhead, thus giving full headroom over the engine when any work is required there. There is a vacuum tank just over the carbureter, the gasoline tanks being set as low as possible in order to give greater stability. The leads of the gasoline line and exhaust line are clearly shown in the drawings.

There is a side outlet at the bottom of the exhaust line just inside the transom, and through this outlet runs the surplus water discharge from the engine, the discharge from the bilge pump, and the waste water from the cockpit.

There is four feet clear space thwartship from one end of the boat to the other, without any breaks or offsets or angles to inflict bruises in a seaway. The floor panels are laid in small sections, which are easy to lift and which take up little room when raised. Down the middle of the cabin floor runs a white oak plank 1 in. by 8 in. screwed to the top of the floor timbers, thus holding in place whatever ballast blocks may be necessary for trimming the boat. These ballast blocks are shown in detail on sheet 9.

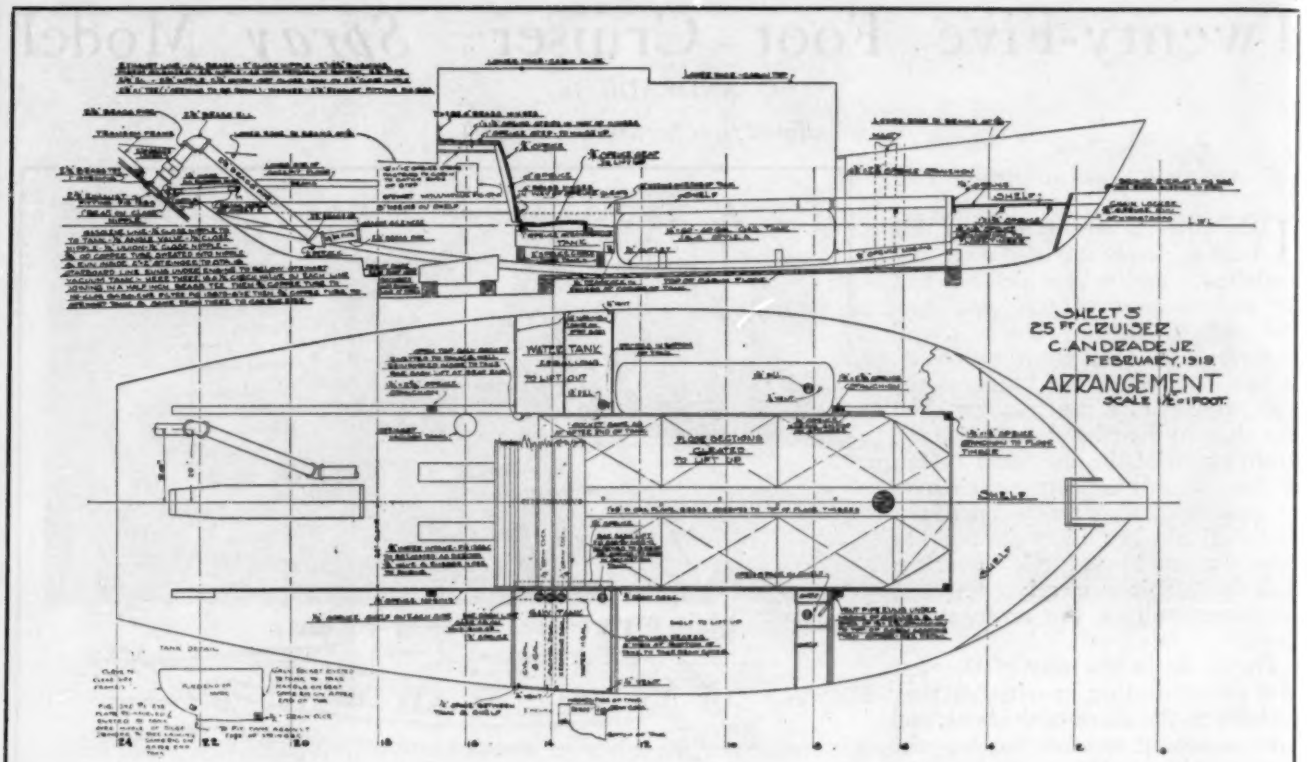
For sleeping accommodations a mattress 4 ft. wide by 6 ft. 3 in. long is laid on the cabin floor at night. Experience has demonstrated that this is the most comfortable way to rig a bunk in a small boat. The mattress should be made of kapok in two thicknesses—say 2½ in. each. One mattress 5 in. thick would be awkward to stow on account of its bulk.



Novel in all respects the deck plan is yet ideal for single handling

SHEET 6, DECK PLAN

The deck plan shows the same simplicity as the interior arrangement. Everything is kept inside a straight line marked by the sides of the cabin house. There is not a single fitting on the deck, with the exception of the main traveler and two main sheet lead blocks. Everything else is raised from the deck. This means toe insurance at night. If you have hurried on deck some dark night in bare feet and collided with a bronze



The cabin arrangement is unique. Notice the absence of regulation yacht berths. Rather than these one sleeps on the floor on air or kapok mattresses where there is plenty of room.

deck cleat, my meaning will be clear to you. The windlass and chain pipe are set on top of the heel of the bowsprit. From here the anchor chain leads through a wide closed chock on top of the bowsprit at the forward end of the rail (shown in detail on sheet 9) and from there the chain leads to a chock on top of the end of the bowsprit. This chock is also shown in detail on sheet 9. The anchor is stowed by hauling the chain through the closed chock at the forward end of the rail, and letting the flukes of the anchor drop down on each side of the bowsprit. In this way the entire ground tackle is kept off the deck, and the fullest possible amount of deck room is secured. Between the heel of the bowsprit and the mast there is room to stow a small square ended dinghy, 5 ft. by 3 ft., which will carry either one or two people, and any reasonable amount of dunnage.

There are three sets of bollards on each side of the rail for docking lines, etc.

The jib sheet leads are set on the bottom of the cabin coaming instead of on deck. The cleats for the main and jib sheets, instead of being set on deck, are set on the side of the ends of the seat.

The deck plan has an extraordinary amount of clear room for a boat only 25 ft. over all.

Sheet 6 shows in detail a boom crotch of novel design. The two portions of this crotch are hinged permanently against the uprights on the back of the seat. The ends of the crotch pieces are halved, and fitted with strips of brass, so that they lock one against the other when the boom is in place. When the crotch pieces are not in use, they hinge down horizontally back of the seat.

SHEET 7, SAIL PLAN

I use a sloop rig, and not a yawl. Slocum sailed the *Spray* as a sloop from Fairhaven, Massachusetts, to Gibraltar, then to Brazil and down to the Strait of Magellan. Here he broke his main boom at the main sheet block. This accident which shortened his main boom to the right length for a yawl, determined him to adopt the yawl rig. For as small a boat as the one here shown, the mizzen is a great nuisance.

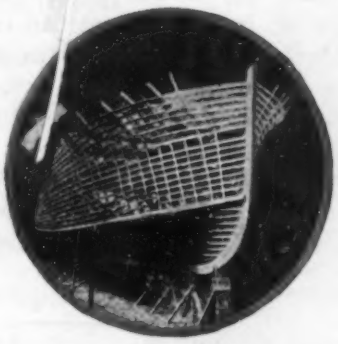
The sail plan shows a jib with boom the full length of the foot, and lacing line on the luff so that the sail can be lowered without difficulty. The jib downhaul and halyard are in one piece with about 6 ft. of spare length. As the jib is lowered or hoisted, a coil of line does not accumulate on the cleat, but there are only a few extra feet of line taking up room at that point; also there is only one line to handle instead of two when lowering or hoisting the sail.

For a boat of this power, the sail plan is perhaps small, but it has the advantage of requiring very little reefing. In the long run a moderate sail plan will travel farther in a day than a large sail plan, the reason being that the boat is going all the time, with no loss for reefing and shaking out reefs. Whereas the larger sail plan necessitates frequent reefing and consequent loss of time.

The awning shown on the sail plan fits over the top of the main boom and gaff when the main sail cover is on. The lanyards at the side of the awning, instead of running out to the rail of the boat, are brought down the sides of the cabin house to small eye plates set on top of the 1½ in. by 2½ in. spruce strip at the base of the cabin house. This gives clear deck room all around the cabin house when the awning is in place.

For the same purpose, the jib sheet leads from the forward end of the cabin house to a block on the jibboom just a few inches forward of the mast. This increases the amount of available deck space forward of the mast. If the jib sheet were led further forward on the boom, it would take up considerable deck space.

Luxurious, fast, *and thoroughly seaworthy*



A Hull of Super-Strength

The hull structure of Great Lakes Cruisers is salt water fastened throughout with copper rivets and brass screws, and involves the use of sawn frames, steam bent ribs and battens, running from stem to transom and forming, a laminated frame work which is practically indestructible.

The strut, shoe and rudder are of Navy G composition, test bars for which are analyzed by commercial metallurgists.

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A judicious arrangement of decks and cabins in the Great Lakes 52-footer makes the most of the space afforded and provides comfortable quarters for a party of eight and a crew of two. These quarters are luxuriously furnished throughout.

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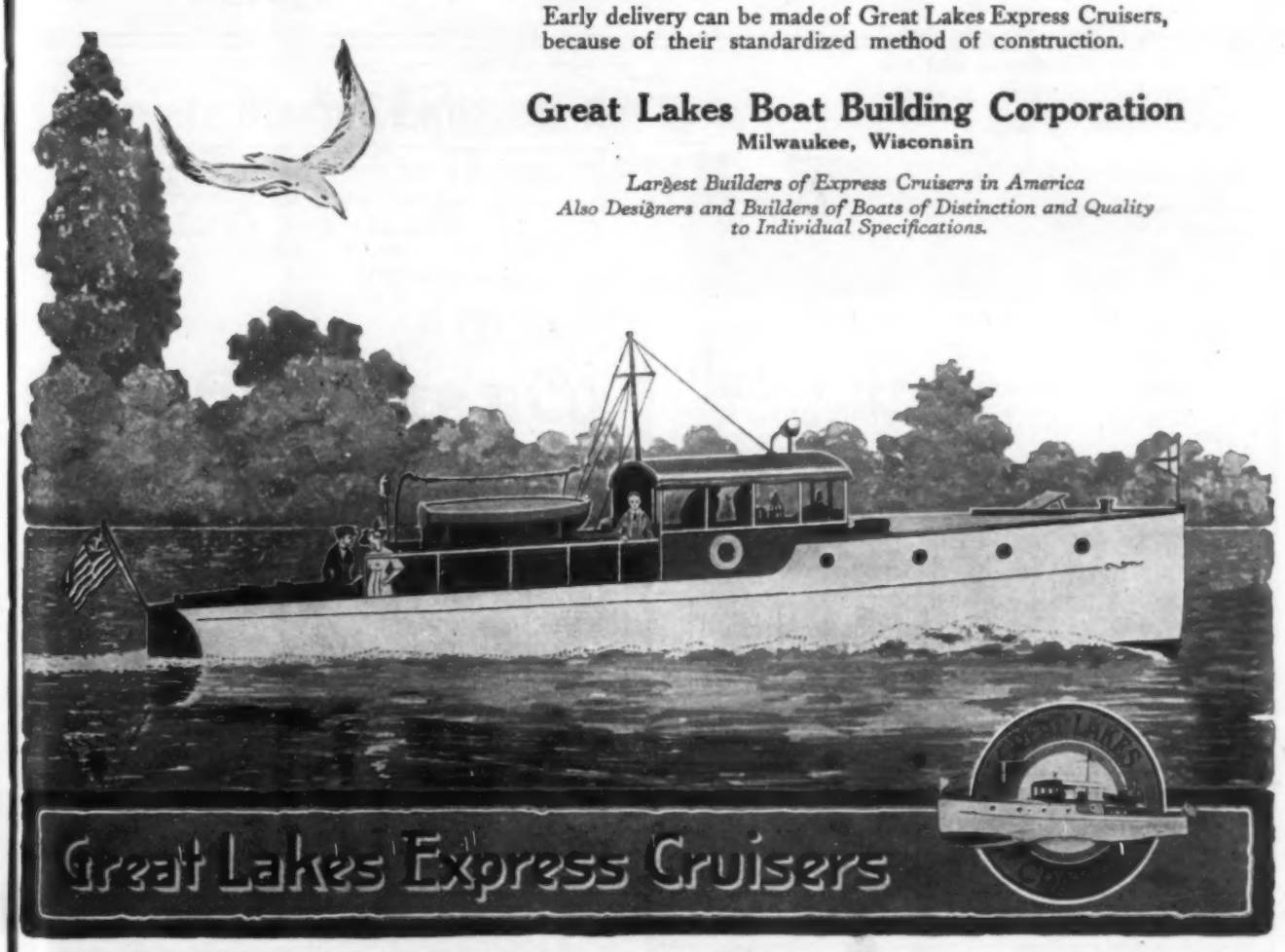


SHEET 8, DETAIL OF KEEL, ETC.

The metal keel is cast in the form of a bronze shell with a number of cross pieces. This is filled with lead, combining the maximum weight with the necessary strength and hardness. If the metal keel proves too expensive, an oak keel may be used, and the weight made up by the ballast blocks inside.

Sheet 8 shows also the details of the cockpit drainage. At the four corners of the cockpit are 1 in. exhaust connections countersunk flush with the top of the planking. From there the water runs through the various pipe connections to the after end of the cockpit on the port side and through a check valve. Immediately outside of this check valve is a tee connection, taking the discharge water from the engine and from the bilge pump. From this tee, the water runs through a rubber hose to the bottom of the main exhaust line next to the transom.

Sheet 8 contains also the details of the steering gear, showing a plan view and port and starboard sides under the seat, and giving in detail the lead of the tiller rope and the position of the quadrant. Note the stop blocks on the transom.

SHEET 9, METAL WORK DETAIL

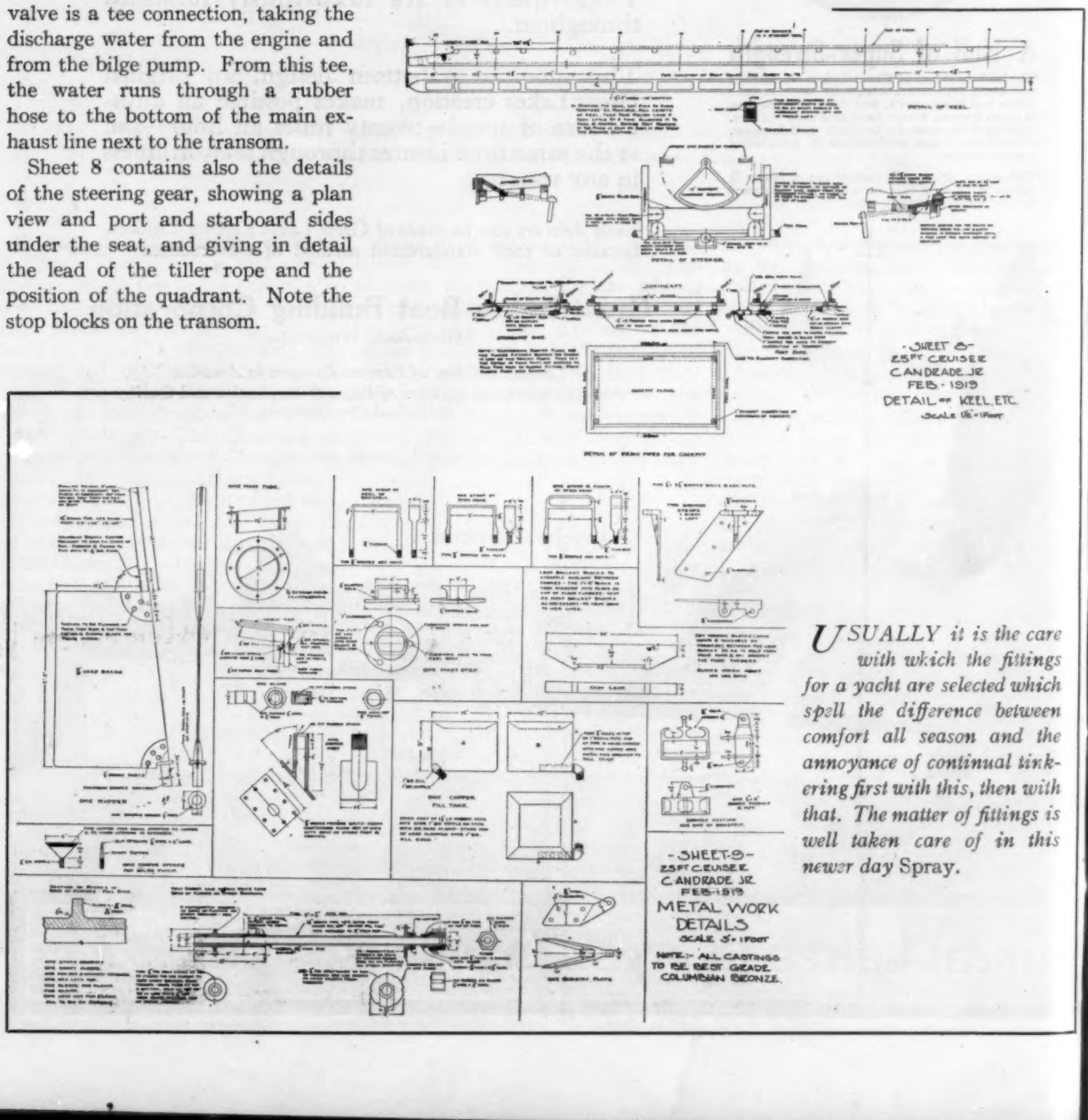
The double chock at the outboard end of the bowsprit is shown on the upper right hand corner of this sheet, also the bobstay plate, gammon straps, large closed chock at the stemhead, two straps which hold the bowsprit in place, mast step, mast tube, lead of the vent pipes at the top of the cabin house, rudder stock, and rudder.

There is also a copper intake for the bilge pump, which has a long narrow opening 1/8 in. wide by 6 in. long, which fits down in the angle between the kelson and the garboard, and draws the last drop of water from the boat.

There is also a small copper fill tank which is used instead of the ordinary funnel. This tank, when in use, is set on the starboard side of the cabin house at the forward end, with a rubber hose leading down the forward end of the cabin house and through the port hole. The hose then reaches in to the fill of the gasoline tank, at which point the hose carries a one inch stop cock. When the tank is almost full, the person inside the boat can turn off the gasoline and prevent flooding of the tank. When not in use, the fill tank is stowed on one of the shelves in the lazerette. This rig is far preferable to the ordinary funnel.

There is one other novel feature in the metal work detail:—the stern

(Continued on page 160)



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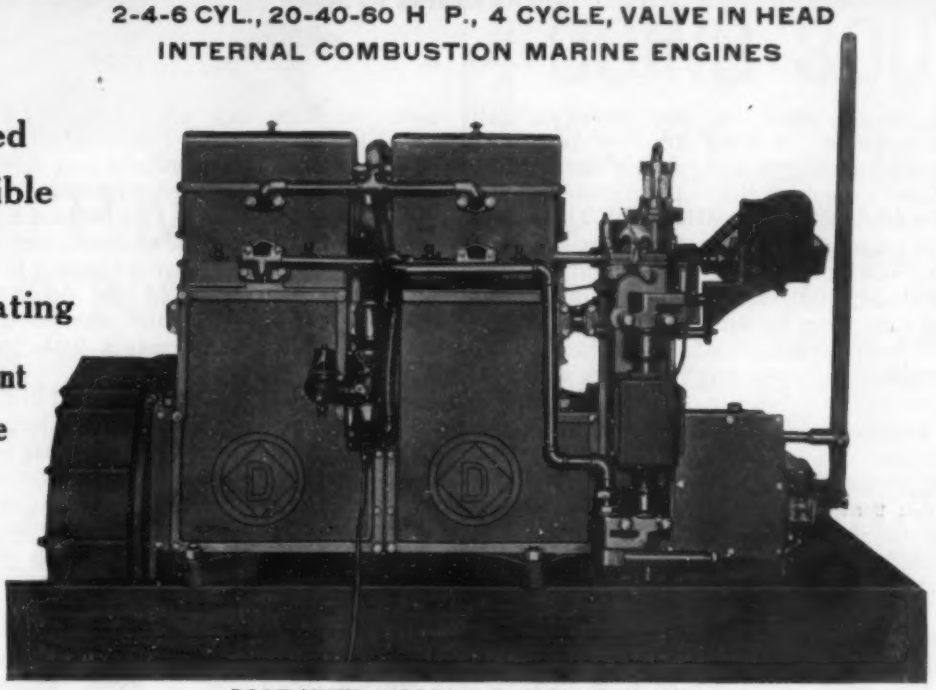

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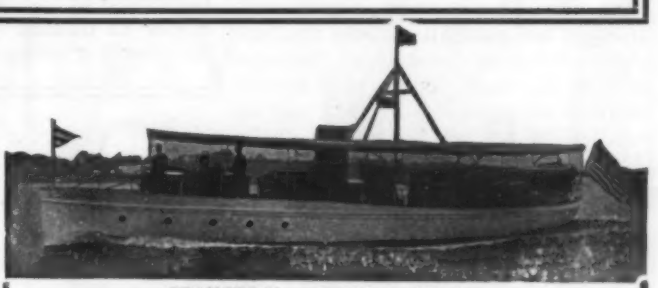

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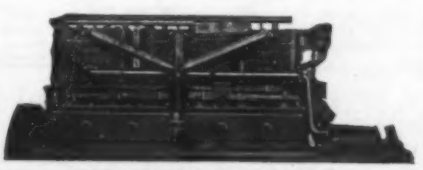

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Twentieth Century Engine

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Launch
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NEW YORK

The Stars as Aids to Navigation

Part I published in the September number of Yachting *includes a star map and a brief description of the 55 navigational stars on page 94 of the Nautical Almanac, together with a description of the method of observing and the problems for meridian and ex-meridian transits of the stars for latitude and the St. Hilaire problem.*

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PART II

IT has already been pointed out that in some respects the stars are more convenient to observe and the problems less complex than when the sun is made use of. It is now proposed to consider certain ways of improving the simple methods already described, but in the first place, to take up some matters with respect to the apparent positions of the stars, etc.

THE APPARENT POSITIONS OF THE STARS

It is well known that the pole of the earth is inclined about 23½° to the plane of its orbit, but perhaps not so well known that it describes a circle about the pole of the orbit in some 26,000 years, thus shifting the equinox some fifty seconds of arc westerly along the orbit annually. As the vernal equinox is also the zero hour of right ascension, a moment's thought will make it evident that the right ascension of nearly all the stars will be increased each year several seconds of time, which fact can be verified by turning to page 98 of the Almanac and noting the annual change in the mean places of the stars there mentioned. The shifting locality of the pole produces an effect on the declination, reaching a maximum plus change of about 20 seconds of arc for stars near the zero hour of R A, and shading off to a maximum minus change of 20 seconds for stars of about the 12th hour, with little or no change at the 6th and 18th hours. As these changes are progressive throughout the year, they might be plotted from the Almanac and would thus seem to indicate a star motion, when in fact the star was not moving nor appearing to move, the motion being that of the points from which its position in the heavens is measured. The plotting of the seeming motion of the star would show a slightly curved line. Referring to Figure 1, this line would run from the heavy dot which indicates the mean place of the star at the beginning of the year to the smaller dot which marks its mean place at the end of the year. The mean place of a star is its true position on a given date as viewed from any point on the earth. Most stars are never actually seen at their true or mean places. The main reason for this is that each star in the course of a year seems to move in a small circle or ellipse of which the major axis or diameter is about 20 seconds of arc. This is a true apparent motion of the star,—i. e. if it were performed in a few seconds instead of in a year an observer with a large telescope could see the motion. The curious figures shown are the results produced on these circles and ellipses by the shifting of the mean places as thus described. The feather of the arrow in each case indicates the apparent position at the beginning of the year while its point indicates its position at the close of the year and note that the mean place at the close of the year bears the same relation to the apparent place at that time as existed between the mean place and the apparent place at the beginning of the year. The trail of a star as plotted from the Almanac for two or three years would be as represented in the figure. The reason for the apparent circles and ellipses annually performed by the stars may be made clear by a homely illustration. Assume that overhead there were a small rain cloud, so high up that it had no appreciable diameter. That the rain were falling perpendicularly and that the individual pursued with some speed a circular track. To protect himself he would tilt his umbrella forward in line with what would appear to be the diagonal track of the drops and he would constantly assume that the minute cloud was a little in front of him. In a sense he would appear to be driving it around in a circle, and that circle would be larger as his speed increased. In other words, the nearer his own speed approximated that of the drops, the larger would be the circle which he would assume the cloud was making. The counterpart of this takes place in the matter of light. The speed of the earth in its orbit, compared with that of light, is sufficient to produce the effect of the 20 second diameter circle, but where stars lie more nearly in the line of the orbit, the circle becomes flattened out into a more or less elongated ellipse, which for stars of zero declination would become a straight line of oscillation.

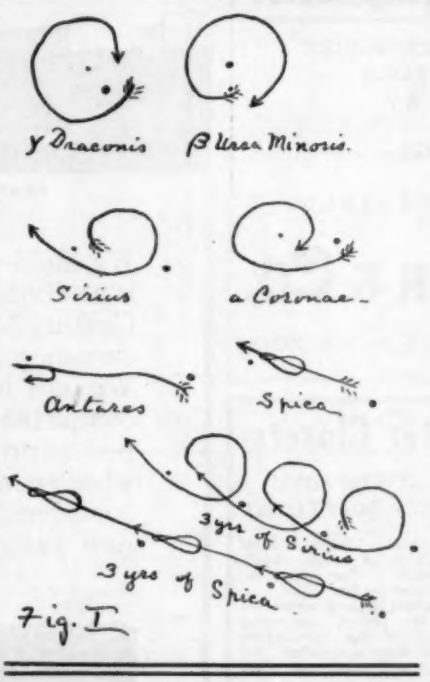

Fig. I

The pole of the earth's orbit is on the 18th hour circle, about 23½° from the celestial pole. The two first stars in Figure 1 are therefore not very distant, and this accounts for their nearly circular apparent motion, Antares and Spica, on the contrary lie very close to the plane of the orbit as will be seen by referring to the star map at the back of the Almanac, in which the track of the sun among the stars may be equally well taken to be the plane of the orbit. Sirius and α Coronæ lie about mid-way between the pole of the orbit and the orbit and show the elliptical form of motion distorted by the shifting of the equinox. These stars were chosen to show the different kinds of apparent track. The 110 additional stars at page 98 of the Almanac were undoubtedly included for possible use for rather crude observation in a case of necessity and would be more accurate for latitude than for any other purpose. The problem for finding the apparent position from the mean position is rather for the astronomer than for the navigator and is to be found in the Ephemiris. It is neither long nor difficult but probably seldom resorted to.

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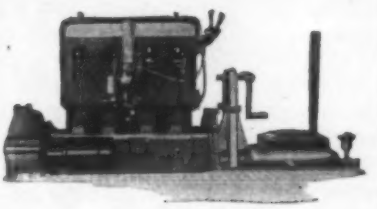

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THE CENTERING ERROR

This error of the sextant has been mentioned already. It is never spoken of among the errors for which tests are to be made by the owner of a sextant. Some instrument makers have means for making this test and furnishing a list of error at intervals along the arc. The Navy has a limit of permissible eccentricity. When one is in port with his latitude and longitude exactly known, it is possible to get some idea of such lurking error by working the St. Hilaire problem after observing several stars of different altitudes. Using the correct G M T and latitude and longitude, there should be *no altitude difference* between the observed altitude as duly corrected and the calculated altitude. Barring mistakes and errors of observing, it may then be said that any difference will be an error of the sextant arc for that altitude. Such error may, however, be in part that of the graduating of the arc.

THE SEXTANT BOX

Although this is not exactly germane to the subject of the stars, perhaps the reader will accept a few words on the subject of the sextant box. Most of the rectangular boxes can be slightly altered, with respect to their interior arrangements, with advantage. The chief object should be that all the telescopes may be returned to the box without altering their focus. The circumstances of their use by any single individual makes unnecessary any change of focus, and the constant repetition of focusing is waste time.

The block which receives the three diameter day glass and the sight tube may, for the sight tube, be cut down ⅜ inch to permit the tinted or neutral shade cap piece to remain on the eye end of the sight tube. The other part of the block may be cut down as far as necessary to permit the three diameter glass to remain at focus. It may be necessary to bore out the socket hole to the bottom of the block. The corresponding cap block in the lid may be cut down or removed entirely. The 5–12 diameter glass may, if necessary, be moved to another part of the box and slots may be cut in the sides and bottom of the box to receive the flanges of the telescope. It may be necessary to provide a block and button for the three diameter glass. The blocks that hold the sextant itself may be shifted in position so as to permit at least the star glass and probably also the three diameter day glass to remain screwed into the sextant and at focus. Instead of glue, a better job can be made with brass screws through the bottom of the box into these several blocks.

A small brass screw eye may be screwed into the front of the box lid so as to prevent one at least of the hooks which hold the box closed from working loose when carrying the box. At other times it may be screwed into a nearby hole out of the way of the swing of the hook. A sextant is not improved by an impromptu tumble when being transported.

The glare on the inside of the tube of the three diameter glass, the sight tube and the star glass may be reduced by painting with a flat black quick drying paint. Of the star telescopes, some are made so that there is much less of this vagrant light than with others.

It may be found advisable to experiment with a cardboard diaphragm to see whether it is not worth while to have an additional diaphragm. There will be found no difficulty in cutting out the glare. The possible trouble will come in unintentionally cutting off a part of the light coming from the object glass. This point can be tested by looking through the object glass at its edges, so as so see whether a part of the eye-piece is cut off by the diaphragm. A blackened shotgun powder wad with the center cut out can be shifted up and down the tube for the purpose of experiment. The relief to the eye in cutting out this undesired light is great enough to justify some trouble in this regard, even perhaps, at the expense of cutting off light from the outer portions of the object glass and thus reducing a little the illumination.

A small piece of deeply tinted glass of any color may be found convenient if held just to the left of the eye piece when sighting the sun. In fact it would be convenient to have such a piece of glass ½ x 1 inch capable of temporary attachment to the eye piece. The sun is thus quickly ranged into the telescope field. For hand use for this purpose a 1¼ square of dark glass, or even a disc is worth a trial.

MERIDIAN ALTITUDES

For meridian altitude of the stars both Bowditch and Muir advise that the Watch time of the local transit of the star be worked out in advance of the sight and the altitude taken by the watch rather than by the dip below the horizon. This is not absolutely necessary as appears by the fact that Lecky and Mayor make it plain that the dip may be relied on, and other writers are silent on the subject. The manner of finding Watch time of transit will be mentioned under the next heading.

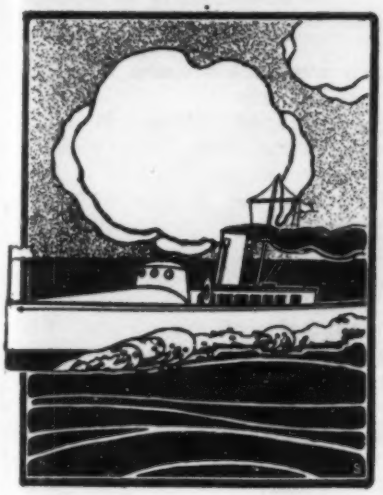
A better way than the one already indicated for selecting a convenient star is to add to the approximate Local Mean Time the R A M S from page 2 of the Almanac for the date of observation and then to look in the list of stars on page 94 for one with a slightly greater Right Ascension. If the figure with which one turns to page 94 is large, e. g. 20–24 hours, stars of 1, 2, 3, etc., are deemed to be of greater R A as though they were 25, 26 and 27 hours. Regard must also be paid to the declinations of the stars as some of them will not be suitable on that account.

The Navy practice for a meridian Altitude which it is also well to follow, is to prepare a so-called Constant in advance of the observation. The constant includes the corrections and declination, so that nothing remains to be done after making the observation except to add or subtract the observed altitude from the Constant. The approximate altitude of the star may be obtained in advance of the observation by subtracting or adding the approximate D R latitude from the Constant. The sextant may then be set to the approximate altitude, and at about the time of the star's transit, it may be directed to the south point of the horizon and the star will at once appear in the field of the telescope. In making up the Constant there are four cases or subdivisions of the problems, dependent on the relative magnitude and signs of the declination and the latitude. They are to be found by referring to Bowditch, page 128; Muir, page 492; Hosmer, page 98; or Henderson, page 80.

EX-MERIDIAN ALTITUDES

In the case of a single ex-meridian altitude of a star, the mean time of its transit need not be worked out in advance. But if several sights at one or two minute intervals are to be taken, it will be necessary to work out the watch time of transit, in order to distribute the sights on both sides of the meridian and to afterward solve the problem.

The formula for obtaining the watch time of transit of a star is to be found in Bowditch, page 323. An example of its use with an ex-meridian series is at the bottom of page 131 and a second example is at the top of page 132. As to this last example, please note that the first column of figures ending in t is not a necessary part of the problem.



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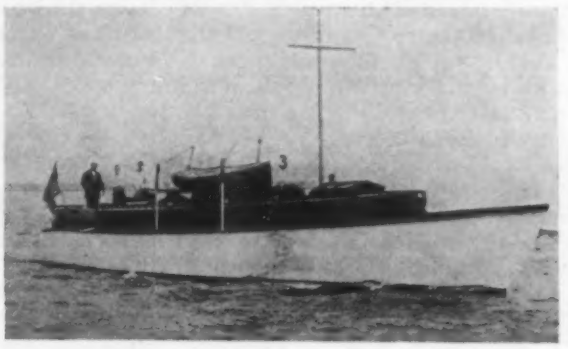

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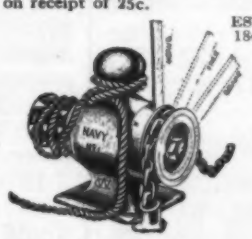

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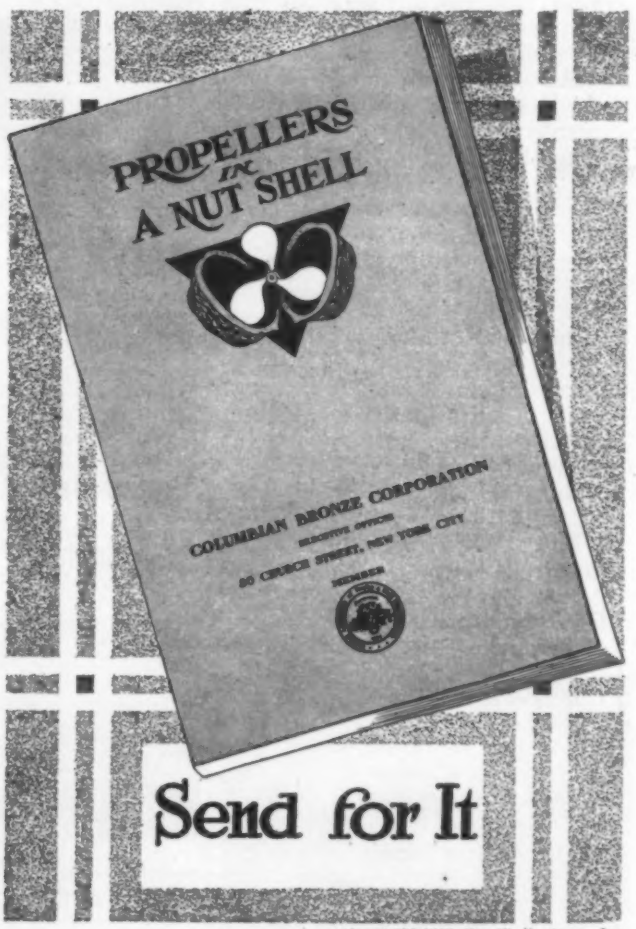

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As to the detail of the formula for Watch time of transit, it may be said that the first item is the R A of the selected star, which at the moment of its transit is, of course, also the L S T. To this the D R Longitude is added (or subtracted, if East) and the G S T of transit is thus obtained. From the G S T (increased by 24 hours if necessary) is subtracted the R A M S and the remainder is the sidereal interval from mean noon at Greenwich. It is reduced to a mean time interval by a small correction taken from page 4 of the Almanac or from Table II of the Almanac, page 108, and thus becomes the G M T of the local transit. From this G M T the watch is obtained by adding to it the Chronometer correction with a reversed sign (i. e. if the Chronometer is fast 10 min. this is *added* to the G M T to obtain Chronometer time of transit) and the difference between Chronometer and Watch, known as (C—W) is then subtracted and is the Watch Time of local transit.

In substance the working out of the Watch time of local transit is merely working backward the usual time computation as used in the St. Hilaire problem. One computation begins with Watch time and the other ends with it.

Muir, page 403, advises an alternative method of obtaining Watch time which avoids a possible error of date which might creep into the problem. This method may be illustrated as applied to the example on page 132 of Bowditch.

	h.	m.	s.
R A M S 5th day	8	54	48.9
Reduction, p. 2 Alm. of Table III Alm.	+	2	01.3
L S T of Local Mean Noon	8	56	50.2
L S T of Local transit, i. e. R A of *	13	34	38.4
Sidereal Interval from Noon	4	37	48.2
Reduction to M T interval p. 4 Alm. or Table II Alm.			—45.5
L M T of local transit + 24 hrs	4	37	2.7
Longitude East	—11	41	48
G M T of local transit	16	55	14.7
Chronometer fast		12	42
Chronometer Time of Local Transit	17	07	56.7
C—W	—	18	07
	16	49	49.7
Watch face requires this	—12		
Watch time of transit	4	49	49.7

WORKING THE ST. HILAIRE PROBLEM IN ADVANCE

If the sun is observed so late in the afternoon that a fix cannot be obtained two hours later by a second observation of it, a star or a planet in the evening twilight may be used. It should be so placed as to give an azimuth 30° away from that of the sun observation. If the course and the speed of the ship can be forecast with considerable accuracy, the calculation may be made in advance of the evening sight. The exact time for such sight is first decided upon and then the D R position at that time is worked out and through it the Sumner Line of the sun observation is drawn. The St. Hilaire problem for the star or planet is also worked out and it only remains after observation to plot on the Azimuth line from the D R position as determined in advance the difference altitude between the calculated and the corrected observed altitude and to draw the second Sumner line. This procedure is made much more practical by the fact that if the observation is made a half minute before or after the appointed time, the problem for the planet or star does not have to be re-worked. All that is necessary is to move the D R point for the second problem along the D R latitude parallel a number of minutes of longitude equivalent to the seconds of time by which the time of actual observation differs from the selected time used in the problem. If the observation is 32 seconds late, the point is moved 8 minutes of longitude arc westerly, if 16 seconds earlier than was selected, then the point is moved 4 minutes of longitude arc easterly.

This is readily done on H O plotting charts, but if the plotting is on plain paper or cross section paper, it will be necessary to turn the minutes of arc of difference longitude into miles, by using Traverse Table 2 of Bowditch. Enter the table with the latitude of the problem as a course angle, find under Distance the longitude minutes and take out from the Diff. Lat. column the number of miles. It is more convenient to plot the latitude of the problem as an angle on the parallel of latitude drawn in the plotting and drop a perpendicular as shown in the figure. Minutes of arc on the diagonal can be laid off as miles and the perpendicular will cut off the correct miles of departure equal to the Diff. Long.

The two errors involved in moving the D R point as above are too small to be taken into account. Of these, the change in declination of the sun is negligible and the other is the short distance the ship would have moved in the short difference of time. The ship's motion could be allowed for by a very slight shift of the Sumner line parallel to itself, to represent a possible ¼ mile difference on a large scale plotting.

The explanation of the accuracy of this procedure is in the fact that in the St. Hilaire problem proper there are only three quantities, i. e. the D R Lat., the declination of the body observed and the hour angle of the body. On the given latitude and considering the full circuit of the earth, the body presents the hour angle used in working the problem successively throughout the 24 hours, and consequently presents it at the actual moment of observation for the point east or west of that chosen as above figured. It must not be forgotten that the point finally fixed upon as that from which the line of azimuth of the second problem is to be drawn, might have been chosen for the purpose originally. The navigator may choose his D R Lat. and Long. point where he will within an area of several miles.

In the plotting Figure II it has been assumed that the navigator would prefer to draw two extra lines, viz., (7) and (8), and figure his star problem with even minutes of latitude and longitude from C, than to calculate at some trouble the latitude and longitude at A, and even then to deal with odd seconds. If the reader will take the trouble to construct the figure, as per the

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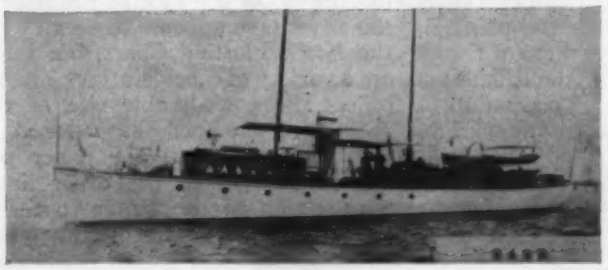
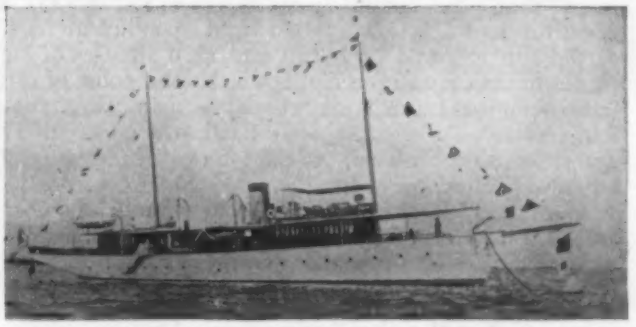
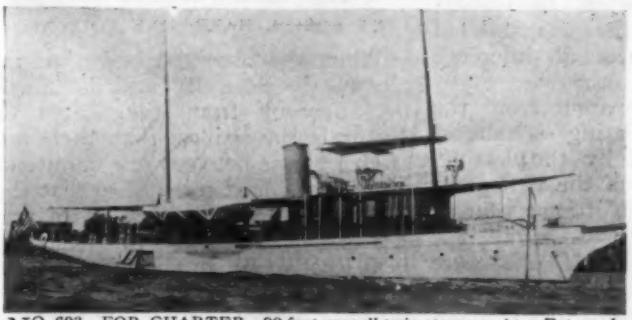


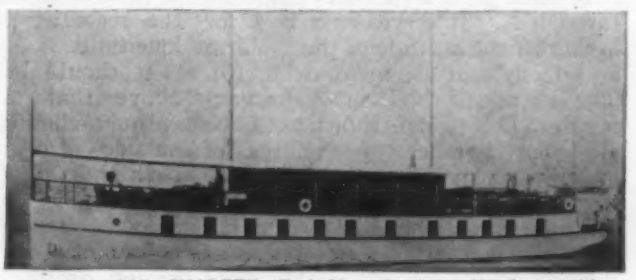
NO. 3422—FOR SALE—Desirable 94 foot twin screw steel power yacht. Deck dining room. Two double staterooms, bath and two toilets. Hot water heated. Standard engines. Speed 12 to 14 miles. Price reasonable. Gielow & Orr, 52 Broadway, New York City.



NO. 1656—FOR SALE—Attractive 131′ x 17′ x 6′ 9″ steam yacht. Dining room and social hall on deck; three double and three single staterooms; two bathrooms; good condition. Gielow & Orr, 52 Broadway, New York City.

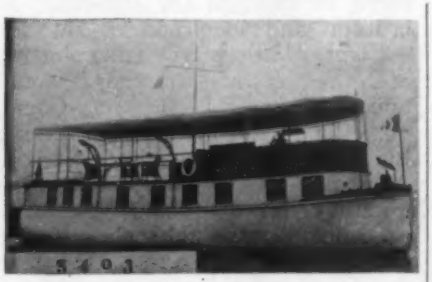


NO. 693—FOR CHARTER—90 foot overall twin steam yacht. Extremely attractive craft. Bath room, double stateroom, large cabin with four comfortable berths; sleeping accommodations for six in owner's party; dining room in deckhouse. Gielow & Orr, 52 Broadway, New York City.



NO. 5006—FOR CHARTER—Desirable twin screw 100 foot cruising houseboat. Speed 12 miles. Deck dining room and lounging room. Seven staterooms, three bathrooms. Now in commission. Gielow & Orr, 52 Broadway, New York City.

NO. 2680—FOR SALE—Attractive 75 foot power yacht. Practically in commission. Two staterooms with double beds. Bathroom. Standard engine. Speed 12 miles. Able sea boat. Inspectable New York. Gielow & Orr, 52 Broadway, New York City.



NO. 5403—CHARTER—Consider Sale—Desirable 50-foot cruising house boat, 4 staterooms, Standard motor, bridge control, recent build of extra heavy construction. Suitable Northern and Southern cruising. Gielow & Orr, 52 Broadway, New York City.

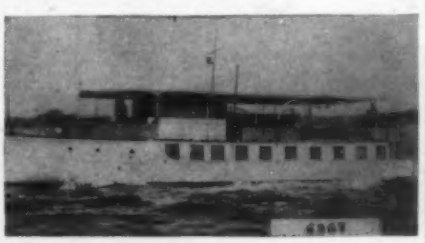
NO. 2549—FOR SALE—Attractive keel cruising sloop. 50 foot deck, 30 feet W. L. 11 foot beam. Built by Lawley. Fully equipped, perfect condition. Inspectable Boston. Gielow & Orr, 52 Broadway, N. Y. City.

NO. 4301—FOR SALE—Finest off shore cruising yawl available; 45 feet W. L.; 15 feet beam; draft 8 feet. Built to Lloyds specifications, class 100 AL, for West Indies cruising. Double and single stateroom, saloon, accommodates five. Complete equipment. Finest condition. In commission near New York. Owner will consider trade for 100 foot auxiliary schooner. Gielow & Orr, 52 Broadway, New York City.

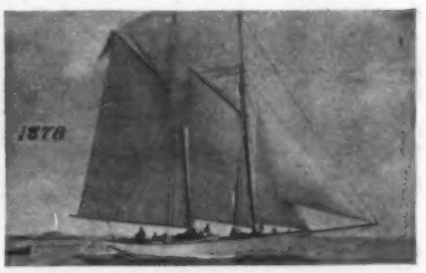
NO. 2970—FOR SALE—Lawley built auxiliary yawl. 46′ x 10′ 6″ x 7′ 0″. Thoroughly overhauled, now in full commission. Sails new 1916. Inspectable near New York. Gielow & Orr, 52 Broadway, New York City.

FOR SALE—No. 3396—Attractive keel sloop, 76′ x 15′ 4″ x 9′ 4″. Built by Herreshoff. Flush deck and cockpit. Sails new 1916. Two double staterooms and bathroom. Gielow & Orr, 52 Broadway, New York City.

NO. 2547—FOR SALE—Desirable 40 foot auxiliary knockabout. Draught 5 feet. Good sea boat. Sleeping accommodations 6 persons. Now in commission. Gielow & Orr, 52 Broadway, New York City.



NO. 6367—FOR SALE OR CHARTER—New cruising house boat similar appearance to photo. 55′ x 15′ x 3′ for Florida cruising; new 6 cylinder Lamb engine. Speed 9 miles. Owners large double stateroom and large main saloon. Deck house 8′ x 8′. Mahogany trim. Shower bath. Crew stateroom—2 men and toilet. Purchaser can furnish boat to suit own ideas. Best boat size and type available. Price reasonable. Gielow & Orr, 52 Broadway, New York City.



NO. 1878—FOR SALE—Desirable 60 foot auxiliary keel schooner. Built on fisherman model. Partly in commission. Fully equipped. Exceptional bargain. Able sea boat. Gielow & Orr, 52 Broadway, New York City.

following description he will see that it is not, in fact, complicated and that the description is much more than the actual work. It constitutes of a late afternoon sight of the sun followed by a run and a planet or star sight in twilight, which latter sight was actually made twenty-four seconds later than was fixed upon for the problem, worked in advance of the later sight.

The first D R position was found at the time of taking the sun. The successive lines on the plotting in the order of their drawing is noted by the numbers (1), (2), (3), etc. Lines (1) to (4) inclusive are merely the bringing forward of the first Sumner line. Line (5) is a parallel of latitude through A. It serves as a base for laying off the latitude of the problem as an angle at A, by drawing (6). The latitude of the Point A, measuring from D R to B, is shown not to be an even number of minutes of latitude, and the length of the line (6) in miles on the scale of the plotting shows that A does not fall upon an even number of minutes of Longitude. Line (7) is therefore drawn parallel to (5) at an even minute of latitude north of the D R point, and (8) is drawn parallel to (6) with a scale ruler and at such a distance from (6) as will show an even number of miles where it strikes (7) at the point marked C. The trouble thus taken in fixing C is at once rewarded by the great ease with which the difference latitude and longitude at C is obtained as compared with the D R position. The star problem is worked from C, but the sight being 24 seconds late, or its equivalent, 6 minutes of arc of longitude, the 6 minutes is laid off as miles on (8) and (9) drawn perpendicular to (7) gives the point E, 6 minutes of longitude west of C and the point of origin for the calculated azimuth of the star. This is (10) of the plotting. The problem showed an altitude difference of—3′, which is laid off from E, and (11) the second Sumner Line is drawn, producing the fix as shown. The difference latitude of this fix from the D R position is measured from D R to F, where the parallel (12) meets the D R longitude and the difference longitude of the fix is found by drawing (13) parallel to (6) and taking its length in miles of the scale as minutes of difference longitude.

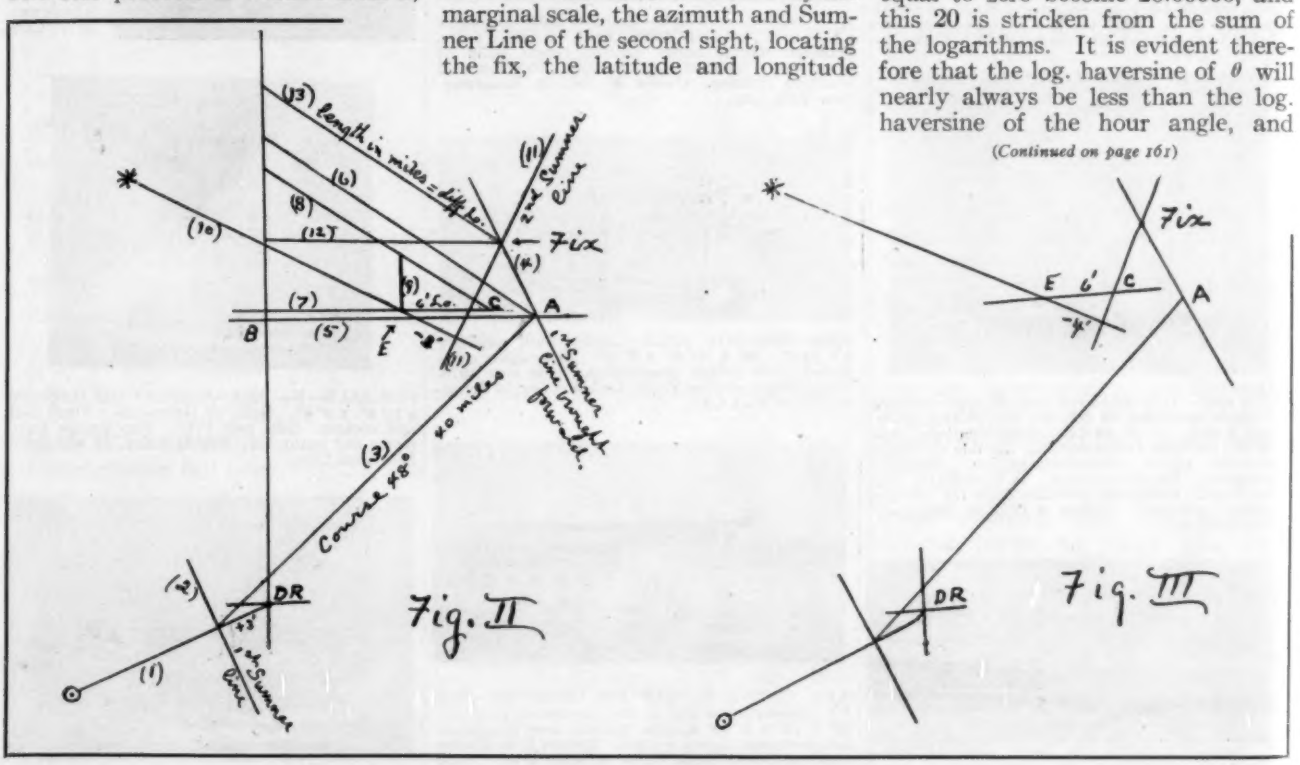
It should be apparent from the above that calculating is almost entirely eliminated by the plotting, outside, of course, of the two problems and that the plotting as far as No. (8) is completed before the second observation. If one were certain of obtaining his second observation on the instant fixed upon, the whole plotting could be completed excepting lines (12) and (13) which serve to measure the difference in latitude and longitude of the fix.

Figure III shows the same plotting as in the preceding figure, as it would appear on an H. O. Plotting Chart, viz., the D R position, the Sumner Line of first sight brought forward to A, point C fixed upon as of an even minute of latitude and longitude by reference to marginal scale, point E located six minutes west of C by the marginal scale, the azimuth and Sumner Line of the second sight, locating the fix, the latitude and longitude of the fix being determined also by the marginal scale. In all, seven lines as against thirteen in the other plotting. On the face of the figures the advantage appears to be all with the H. O. Plotting Chart, but there are a variety of considerations, among others the considerable size of the chart and the fact that several of the lines on the plain paper are merely parallel to the other lines, which seem to the writer to throw the balance in favor of the plain paper plotting, or rather toward the cross-section paper, which supplies conveniently the right angles used in the construction.

THE COSINE HAVERSINE EQUATION

When the observed body has an altitude between 10° and 35° it will be apparent from the Table of Natural Haversines that there are twelve points between one minute of arc and the next minute, so that the result is accurate within 5″ of arc. Up to 65° of altitude this accuracy is at least to 10″ of arc and to 70° of altitude, 12″ of arc, and to 75° of altitude, which is the upper limit for usual observation, it is 15″ of arc. The first few pages of the Haversine Table, which if used for final results would indicate altitudes exceeding 75°, are in fact chiefly useful for the first half of the problem. This part of the problem only provides a greater or less sum to be added to the natural haversine (L~d) which addition may indeed be zero. The sum of the log. cosines of Lat. and dec. at the extreme limit when both are equal to zero become 20.00000, and this 20 is stricken from the sum of the logarithms. It is evident therefore that the log. haversine of θ will nearly always be less than the log. haversine of the hour angle, and

(Continued on page 161)



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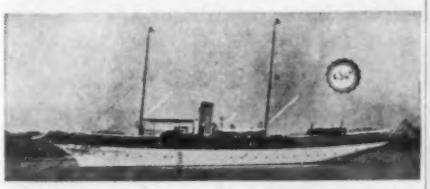
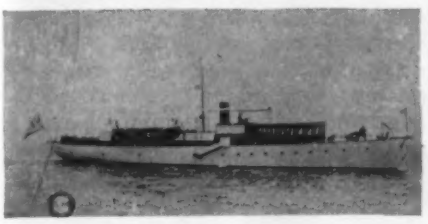
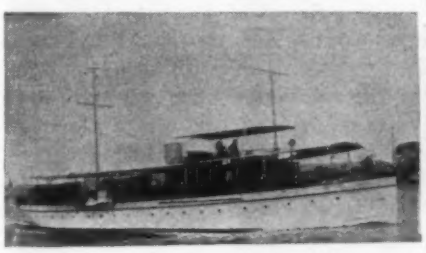


NO. 636—FOR SALE OR CHARTER—Modern 150 ft. steel steam yacht; most desirable of type and size available. Excellent accommodation; good speed. First class condition. Cox & Stevens, 15 William Street, New York.

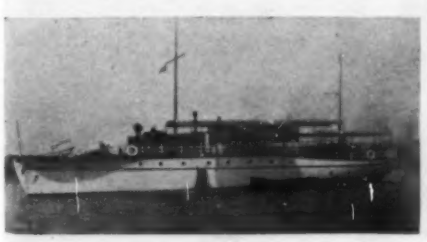


NO. 2026—FOR SALE OR CHARTER—Twin-screw cruising power yacht; 107 x 18 x 5.3 ft. Speed 11–12 knots; 75–90 H. P. Standard motors. Four staterooms, deck dining saloon, bath and two toilets, etc. Recently completely overhauled at large expense. Cox & Stevens, 15 William Street, New York.

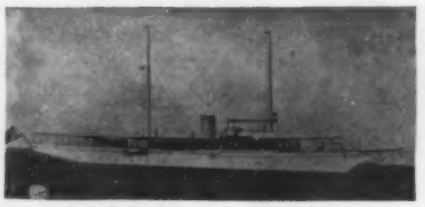


NO. 1796—FOR SALE OR CHARTER—Very roomy, light draft, twin screw cruising power yacht, 99 x 17 x 4 ft., adapted for Florida service. Speed 12–14 miles; Standard motors. Large dining saloon, six staterooms, three bathrooms; all conveniences. Cox & Stevens, 15 William Street, New York.

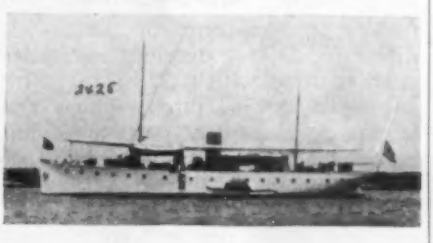
NO. 978—FOR SALE—High speed, triple screw, oil burning steam yacht; 165ᵣ 16 x 6 ft. Speed up to 30 miles. Deck dining saloon, four staterooms, etc. Low figure accepted for immediate sale. Cox & Stevens, 15 William Street, New York.



NO. 1526—FOR SALE—Twin screw cruising power yacht; 75 x 14 x 6 ft. Speed 12 miles; two 60 H. P. motors. Two staterooms, saloon, bath and toilet room, galley, etc. Price attractive. Cox & Stevens, 15 William Street, New York.



NO. 1225—FOR SALE—Twin screw cruising power yacht; 137 x 15.9 x 7.8 ft. Speed up to 18 miles; two 6 cyl. 300 H. P. Speedway motors. Excellent accommodations. Cox & Stevens, 15 William Street, New York.



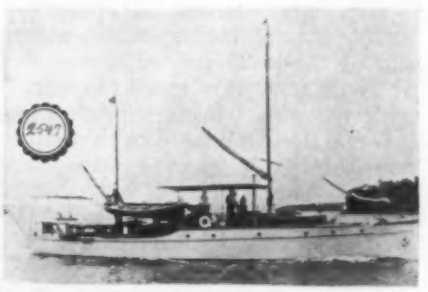
NO. 2425—FOR SALE OR CHARTER—Twin screw cruising power yacht; 90 x 16.6 ft. Speed up to 12½ miles; two 6 cyl. 60–90 H. P. motors. Excellent accommodation. Now in commission. Cox & Stevens, 15 William Street, New York.

NO. 3324—FOR SALE—Fast bridge deck cruiser; 55 x 8.9 x 3 ft. Speed up to 23 miles; 8 cyl. 200 H. P. Speedway motor. Two berths in cabin, toilet room, large cockpit, etc. Price attractive. Cox & Stevens, 15 William Street, New York.

NO. 2560—FOR SALE—Fast, V-bottom, twin screw power cruiser; 60 x 13 x 3 ft. Built 1917. Speed up to 18 miles; two 6 cyl. Sterling motors. Double stateroom forward; roomy saloon aft with separate galley; two toilet rooms (one with Sitz bath). Low price for quick sale. Cox & Stevens, 15 William Street, New York.

NO. 3427—FOR SALE—Fast, roomy, twin screw cruising power yacht; 74 x 14 x 3.9 ft. New 1916; Lawley built. Speed up to 16 miles; two 6 cyl. "Speedway" motors 110–120 H. P. each. Large saloon, three staterooms, shower bath, etc. Cox & Stevens, 15 William Street, New York.

NO. 3235—FOR WINTER CHARTER—Roomy twin-screw power houseboat; 80 x 16.7 x 2.10 ft. draft. Speed 10½ miles. Three double staterooms, saloon, toilet room, etc. Price reasonable. Cox & Stevens, 15 William Street, New York City.



NO. 2547—FOR SALE—Handsome, modern, exceptionally able gasoline cruiser; 64 x 12.6 x 4 ft. Speed 11½ miles; 60 H. P. 6 cylinder heavy duty motor controlled from bridge. Main saloon, toilet and separate galley forward; engine room amidships; double and single stateroom and bathroom aft. Cox & Stevens, 15 William Street, New York.

NO. 148—FOR SALE—Steel, flush deck, steam auxiliary schooner yacht; 130 ft. overall, 110 ft. waterline, 26 ft. beam, 15.6 ft. draft. Speed under power 9 knots; compound engine; electric lights; all conveniences. Extremely able craft; heavily constructed. Cox & Stevens, 15 William Street, New York.

NO. 3336—FOR SALE—Flush deck auxiliary schooner, 83.6 x 63.6 x 18.5 x 7.6 ft. Built 1915. 50–60 H. P. motor. Two staterooms, saloon, bath, two toilets, etc. Price and further particulars from Cox & Stevens, 15 William Street, New York.

Air Propulsion for Boats

Reasons Why Water Propellers Give Better Results Under Practical Conditions

IN view of the fact that efficiencies as high as 75 per cent. have been realized with air propellers on aeroplanes, it is perhaps only natural that many persons should assume equal results to be obtained with air propulsion when applied to water craft. Under certain conditions this would be the case, but as fitted in actual service the air propeller has a much lower efficiency than one turning in water.

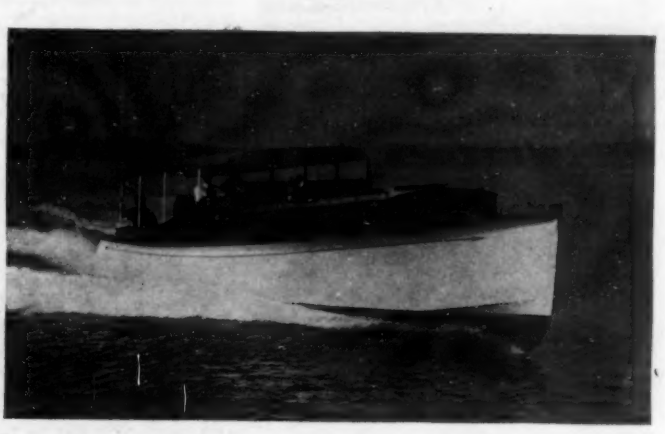
If a large enough air propeller, having a pitch corresponding with a slip of about 25 per cent. were run at a sufficiently low speed to coincide with the most effective pitch angle it would drive a boat in calm weather more efficiently than a water propeller. Wind, however, would affect such an outfit enormously, as can be demonstrated by considering an actual example. Suppose, for instance, that a 20 ft. boat be driven at 10 miles an hour by such a propeller turned through reduction gear by a 10 b. h. p. motor. Assuming the propeller to run at 200 r. p. m., and allowing 25 per cent. for slip, the pitch would be about 66 ins. Now let us consider the effect of wind. If a wind with a velocity of 10 m. p. h. were blowing against the boat the propeller would screw through the air at exactly this speed when run at 200 r. p. m. and have no effect whatever. To obtain the normal thrust, as in still air, the revolutions would have to be doubled, and as the torque would be the same as before, twice the power would be required. Supposing the velocity of the wind against the boat to be increased to 20 m. p. h.—by no means an unusual condition in exposed sea estuaries—the speed of the propeller must be more than doubled before any thrust is produced, and more than trebled to give the normal thrust, so that three times the normal power is developed to give the boat her speed of 10 knots. On the other hand, should a wind having a velocity of 10 m. p. h. be with the boat, the normal speed of 10 knots would be realized with the propeller running at a lower number of revolutions than 200 and less power would be required.

The conditions when proceeding against the wind can only be met by installing a motor capable of giving the normal speed to the boat in still air and of turning at more than treble its normal revolutions with a proportionate increase of power in strong adverse winds. This means a much larger and more costly engine than would be required to propel the boat with a water propeller. Moreover, as already indicated, an air screw with only 25 per cent. slip must necessarily be of unwieldy diameter. To some extent these drawbacks can be obviated by increasing the slip, but at the sacrifice of efficiency, and this is what is done by the makers of air propulsion outfits for boats.

A recent pattern of aerothrust motor for driving dinghies and other craft is fitted with a 32 in. propeller having a 30 in. pitch, whilst the engine develops 3 h. p. at a normal speed of 1,800 r. p. m. At this speed, if there were no slip, the propeller would screw through the air at the rate of over 50 miles per hour, whereas the outfit is designed to drive a boat at about five miles per hour. The slip in this case, therefore, is in the neighbourhood of 900 per cent. The effect of wind on such an outfit is almost negligible when compared with that for a large propeller having a slip of only 25 per cent. Supposing, for example, a wind of 20 miles an hour is blowing against the boat driven by such a propeller. In order to obtain the normal thrust it will be necessary to increase the revolutions in the proportion of 50 to 70, or in the particular case in question from 1,800 to 2,500 r. p. m. Likewise, with a fair wind the reduction of speed need not be nearly so great as with the large efficient propeller having a slip of only 25 per cent.

Naturally, the efficiency of an air screw with the above-mentioned slip is very low, and probably does not exceed 25 per cent. as against, say, 60 per cent. for a water propeller. This difference, however, is to some extent reduced, so far as outboard motors are concerned, by the fact that the water propeller is driven through the medium of two bevel gears, whereby the efficiency of the outfit is substantially reduced. Moreover, owing to the large increase of power required to give a comparatively small increase in speed, the difference between the two equipments is not very apparent to the occupants of a boat. For example, an air screw might give a speed of 5 m. p. h., whilst a water propeller driven by a motor of like power would increase the speed to 6 m. p. h.

In view of the foregoing considerations it is generally admitted that air propellers for water craft are only suitable for boats and other vessels which have to proceed through shallow weed-infested waters, and their use has been largely confined to these types. Some of the rivers even in this country are so overgrown with weeds that an ordinary propeller could not be used on them, while in tropical regions this feature is often the rule rather than the exception, and in such cases air propulsion is the only practical means of progression. Again, for dinghies which are used for landing on flat shores or hards, an air propeller has distinct advantages, as it is not nearly so liable to be damaged as the water outfit. Finally, an air-propulsion outfit is less costly and more simple than one having a water propeller, and for an existing boat it involves no alterations to the hull below the water line.



A FORTY foot Hand designed and Sterling powered craft owned by Kenneth L. Green, Hyannisport, Mass.

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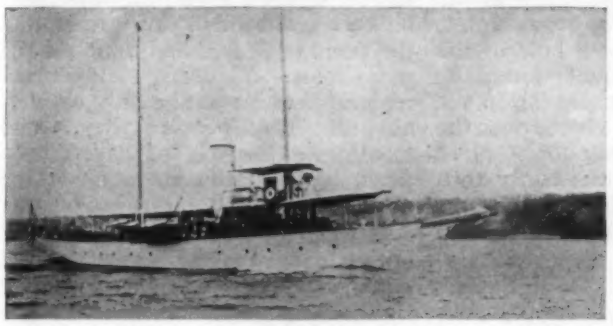
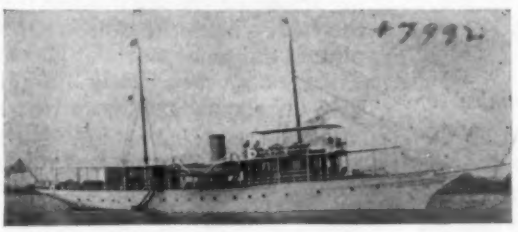
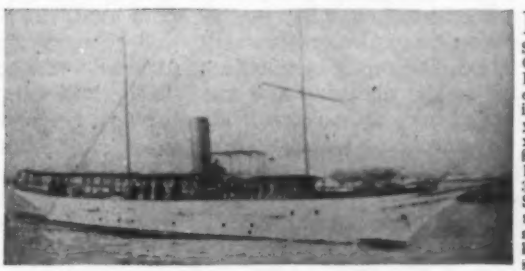


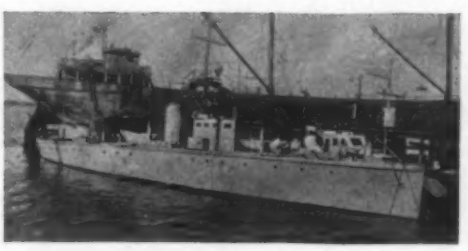
NO. 51—FOR SALE—Price Attractive—Steam yacht 115′ x 95′ x 15′ 6″ x 5′ 5″ draft. Built 1903. Triple expansion engines; Seabury boiler, new 1913. 4 staterooms and 2 saloons. Full particulars, plans, etc., from Tams, Lemoine & Crane, 52 Pine Street, New York.



NO. 7992—FOR SALE—Price attractive—Twin screw steel motor yacht 115′ 7″ x 17′ x 5′ 3″ draft. 6 cylinder Standard motors. Speed 15 miles. Large cruising radius—commodious owner's quarters. Full particulars, plans, etc., from Tams, Lemoine & Crane, 52 Pine Street, New York.



NO. 7987—FOR SALE OR CHARTER—Modern cruising motor yacht 106 x 13.6 x 6 ft. draught. Built 1911. 300 H. P. Standard motor; speed 13 knots; 4 staterooms, saloon below, deck dining saloon, bath room, 2 owner's water closets. Lighted by electricity. Large quarter and bridge decks. Full data from Tams, Lemoine & Crane, 52 Pine St., New York.



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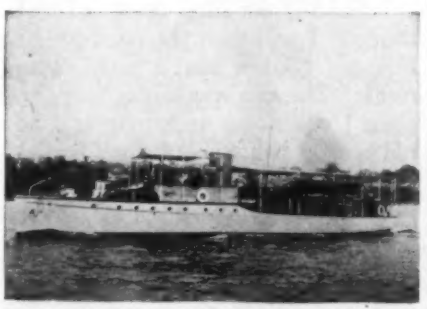
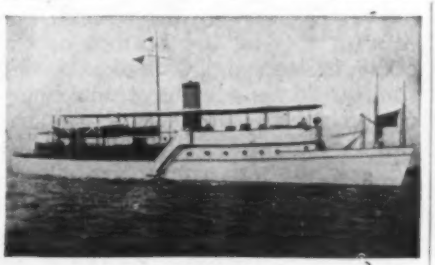
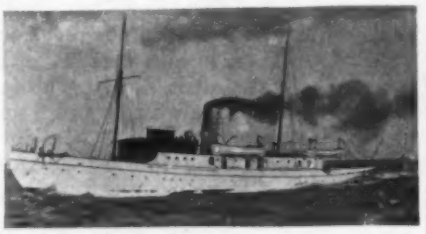


NO. 1738—Raised Deck Cruiser, 65′ x 11′, six cylinder motor; good accommodation. Apply William Gardner & Company, 1 Broadway, New York.

NO. 1996—FOR SALE—Raised deck cruiser with deck house; 45′ x 11′ x 3′ 6″. Fitted with 20th Century engine. Practically in commission; good accommodation; splendidly furnished. Apply William Gardner & Company, 1 Broadway, New York.



NO. 924—Power Yacht, 92 ft., six-cylinder 20th Century motor recently overhauled, good deck space. Apply William Gardner & Co., 1 Broadway, New York.



NO. 328-E—English built Steam Yacht, Lloyds Classification, inspectable New York. 151 x 24.9 x 12.9. Adapted extensive cruiser. Well arranged accommodations. Apply Wm. Gardner & Co., 1 Broadway, New York.

NO. 1652—FOR SALE—Raised deck cruiser 60 x 13 x 4. Standard engine. Good accommodations. Apply William Gardner & Company, 1 Broadway, New York.

NO. 2446—FOR SALE—Practically new bridge deck, V-bottom cruiser; 42′ x 9′ 6″ x 2′ 11″. Fitted with a 6 cylinder 65/75 h. p. Sterling. Two saloons, galley, toilet, etc. Speed 15 miles. Apply William Gardner & Company, 1 Broadway, New York.

S. C. 63

N. L. RIDDERHOF

I WAS kneeling between the wing engines trying to get a piece of waste which was clogging a drip feed on the starboard motor, when—

—there was an explosion forward, crashing wood, the rattle of machine gun bullets on the planking and the deck houses above, an explosion aft with the same crashing wood, and on top of it all still another explosion forward which felt as if the whole bow section had been taken away.

My watch mate and I sprang to the controls of the engines for the signals for manœuvering which were sure to follow. I happened to note that the engine room clock showed 6:14.

In a second it was clear what had happened. When we left the convoy at five that morning it was so foggy that we didn't make any attempt to keep our group together on the return to Bensonhurst. And while we were traveling in, the fog must have lifted suddenly, disclosed a submarine near by which had been lying on the surface quietly, had heard us coming, and was at quarters ready to engage if we should come close or if the fog should lift.

The firing stopped as suddenly as it had come upon us. But why didn't we return the fire? And why didn't the skipper manœuver for position? Why didn't we get any signals in the engine room? My mate and I were keyed up for a bit of real action, and yet not a signal on the ship's telegraph. What was wrong?

There wasn't a sound on deck, no shouted orders, no general quarters, nothing. We just kept going on. But I noticed a slight change. Before our stern had been lifting with a following sea, but now we were rolling in the trough. She was out of control! It seemed that we waited hours; the clock showed 6:18, only four minutes. What *was* wrong?

Then my mate, standing at the controls of the port engine, caved in. He acted as a man does when the gas gets him, slumping down into a heap on the deck-boards. With an eye on the telegraphs I straightened him out, and found a big wet spot on the left side of his dungaree jumper. It was blood. He was unconscious.

Sure that the ship was not under control I climbed the ladder.

What a sight! The after deck house, part of the starboard planking, and the deck over the lazaret had been torn away. In the trough as she was, she was taking on a little water. And forward the wherry was wrecked, the signal mast was hanging over the port side, the Poole gun was upset, and there was a gaping hole in the forward magazine and forecastle decks, indicating an explosion in the forward magazine. A glance over the sides showed that the only place where the planking was badly torn off was aft at the galley. Close range work was indicated by nothing but high shots.

The after section of the chart house was completely demolished. The Q. M. was in a heap with one hand still clutching the wheel. The captain was at the bottom of the chart house ladder, dead, showing that he did not even have time to get up on deck. But where was the exec? He wasn't below in the officers' quarters, nor in the officers' head.

Then I realized. The shell which carried away part of the chart house and which brought down the mast and wrecked the wherry had raked the bridge, and that—the exec and the lad on watch in the nest had been carried over the side.

Rushing below I shut off the engines. My mate had died. Aft I found the cook still hanging onto his frying pan. He was propped up against the ice box, dead. In the men's quarters aft I found evidence that the men were rushing on deck when the shell got them, every one. All my mates, the black gang, gone the way the black gang usually goes, below decks, without a chance to fight.

In the forecastle the same thing had happened. The explosion in the magazine had torn out the steel bulkhead and killed every man, and the same explosion had done for the radio man. All dead! Suddenly I realized that I was the only one left aboard. That perhaps they would have gotten me too if I hadn't been down between the engines working on that oil feed.

Helpless! The skipper gone, the crew gone, my mates gone, the Poole gun upset—but the Y gun? It was all right. Oh, for a chance to drop a depth bomb alongside that cowardly sub!

Suddenly, as though in answer, the fog lifted just enough to show through the heavy haze the dim form of the pirate on our starboard quarter. The fog almost instantly hid it, but I saw that she had gotten under way.

God, how I hated to see her get away! Not by a big sight! If the black gang could clean up Vera Cruz then I could get that pirate!

The wheel was splintered but not blocked. By another miracle the steering gear aft was in working condition, though a bit loose. Hooray!

Attaching the lanyard to the Y gun trigger I led it forward along the port side, and then removed the safeties and set the cans at 40 feet. Going below, I filled the lubricators of the wing engines, started them and ran them up to about 450 revolutions, and then rushed up on deck.

I headed for the place where I thought I had seen the enemy. But how did I know that I was heading right? The sub was under way, and since I was not a deck man and had never held the wheel before I might be heading in exactly the wrong direction.

Again the fog lifted. There she was, on my port bow about 3000 yards away. Her decks were awash, and I prayed that I might get to her before she submerged completely. But there was a figure on the conning tower. Suddenly several men appeared, and I saw them climb down onto the deck and move forward to the big gun. In water to their knees they were preparing to fire as soon as she got her decks above water and they could open the ammunition hatch.

It was a race! If they could get to the surface, load and fire before I rammed or dropped a can on them it

Speaking of S. Cs

THE November number of YACHTING will contain the story of the Race from Bermuda of the 110 foot submarine chasers. A stirring race and one which demonstrates again the possibilities that lie in the internal combustion motor as the propelling power for war craft.

was good-bye for me, for although I was a poor target head-on the range was so short that they couldn't miss. Oh for another black gang man below to start the center engine and give her all she was worth! I couldn't leave the wheel, but she was doing nearly sixteen knots on the two wing engines, and I was getting pretty close while the U boat still had water on her decks.

Then a commotion. Her skipper must have hollered orders for all hands below, for the men scrambled onto the conning tower and tumbled down the hatch in great confusion, closing the hatch after them, and then I saw they were trying to submerge before I got to them.

Their cowardice had gotten them, for if they had held fast when they were emerging they stood an even chance of getting their gun into action before I came upon them; and if at the very first they had only kept on submerging they could have gotten below the surface and been safe.

But now they were done for. She was under way again, but going very slowly compared to my speed. After heading for her stern I swung into a parallel course and came up along her port side at about 20 yards, for the skipper had told us that the cans were shot out about 60 feet on each side. She swerved to starboard, but I followed easily.

Then, with my heart in my mouth, I dropped the wheel, rushed aft and jerked the Y gun lanyard.

Wow! In the explosion the Y gun crashed down through the deck. But the charges both were shot out, and I saw one fall on her opposite side just abaft the tower. There was a splash. I waited. What, wasn't it going off? Surely I had removed the safety. Was my one chance gone? Again it seemed like hours.

Boom! She exploded! I saw her after section shoot up five yards above the surface in a geyser of water and oil. It fell back, and then the spray of oil and water rained upon me. It dropped over the whole after section, and with it fell some small metal splinters. It brought me back to a realization of what I had done, and the position I was in—all alone on a wrecked sub chaser at sea.

The engines were still going, the ship had gotten into the trough and was rolling badly and shipping water in the hole aft at the galley. I went below, shut off the engines, filled the lubricators and got the oil measures full and ready, oiled the water and air pump bearings, and felt of the cylinders and bearings and found everything cool and O. K.

Then, making two light lines fast to the ignition switches of the port and starboard motors, I ran them up through the skylight above and onto the bridge. I started the wing engines, got them doing around 350, and hurried on deck. A jerk on either line would pull the switch out and stop the engine. I had put tape along the battery sides of the switches so that the jerk would not merely throw her over to battery. If you know the Standard engine controls you will understand.

I was going to try to make port with that wreck. The engines ran as well as ever. She didn't take on much water when out of the trough, and I couldn't stand by and wait to be picked up, excited as I was, so I did the only other thing possible.

But what course to make? I knew that if I simply headed west I'd hit land somewhere. But the compass was demolished and there was no sun. I couldn't guess the course, that was a cinch.

And then I remembered. The skipper carried a small, erratic compass on the strap with his wrist watch. Yes, there it was! I took it off, feeling like a ghoul must feel. But I needed it, and I was sure the skipper would be proud to have the good old 63 come into port under her own power, a wreck, but victorious.

I headed west roughly, and noted that the sea was on my port quarter. If it had been on the starboard quarter she would have taken on water and I could not have held to that course. Luck!

Twenty minutes passed. I dropped the wheel, rushed below, filled the lubricators and rushed back to the wheel.

Another twenty minutes by the skipper's watch. This time I pulled the lines I had strung up. Both motors stopped beautifully. Going below, I filled the lubricators and got the oil measures ready again, started the engines (had to take the tape off the battery sides of the switches and put it back on) and got back at the wheel.

That stunt was repeated seventeen times, which meant five hours and forty minutes running, I was tired. The excitement had worn off. I was cold and wet.

Then there was a breath of air. The fog grew lighter, then it lifted a little, then rolled off and—

—Hooray! There was the Ambrose lightship two points on my port bow and only a couple of miles away! Luck again.

I filled the lubricators when a quarter mile from the lightship, gave the engines a notch more, and then steamed proudly by. I saw a commotion aboard her, and wished all the crew could be with me there.

Then the guard ship, that arrogant S. P. I saw the Q. M. signaling wildly to me, saw all hands rush to the rail, and I bet they were wishing they could go to sea some time and have a chance at a sub.

I couldn't read the semaphoring and I couldn't stop, so with one leg hooked over the wheel I slowly spelled out, o-n-l-y—o-n-e—l-e-f-t—c-a-n-t—s-t-o-p (I bet the Q. M. swore at my angles) and quietly turned back to the wheel to let her do what she would. I was half afraid she would follow, and now that I had gotten so far I wanted to go the whole way so they would know that those little "Suicide Club" boats were decidedly able. She let me go.

I passed a group of three S. C.'s coming out, to listening duty, perhaps. My, what excitement! It made me forget how tired I was, but no less sick about all my dead mates.

It was an hour's run from the lightship to our anchorage at Bensonhurst. That meant filling the lubricators three times. The last time, when I rushed back on deck I found her way out of the channel and heading for Coney Island. After getting her back I loosed the anchor, got the stock in place and ready to kick over.

And then the anchorage. There were at least seven S. C.'s in port, three at the Squadron Office, one at the Bensonhurst dock, and three at anchor. The Xarifa was there with her kite balloon, the Bagley was heading for Marine Basin, the Perkins was at anchor, and then there was the dispatch boat, S. P. 2373.

It was the same familiar sight. But was I dreaming? Were all my mates gone? Had I gotten a submarine? Was I bringing the ship to port, alone? I did the thing I had read girls did, and pinched myself. I felt it! I was not dreaming!

A good ways out I jerked the lines to the ignition switches. The engines died at once. She lost headway quickly, and then I left the wheel and went forward to drop the hook.

I might be too far out. Would the anchor take hold, or had I better beach the ship on the sand just west of the Squadron Office? Not by a blamed sight! If I could bring her in that far I could bring her to anchor. I heaved at the heavy ketch and away she went, giving the bow an awful slap as she dropped. When a good bit of chain was out I caught it.

(Continued on page 161)

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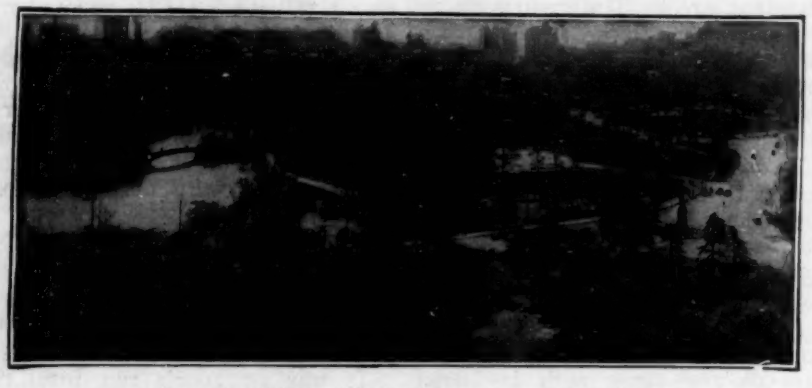

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"Millionaires' Row" on Fifth Avenue in the Background.

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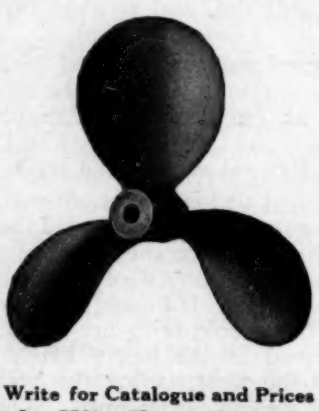

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Spray

(*Continued from page 146*)

bearing, tube and stuffing box, which are built up into one member as shown at the right hand lower corner of sheet 9. The stern bearing has cast on it a flange, and the forward face of this flange, which sets against the after face of the shaft log, has a number of concentric grooves turned in it; these grooves being set over a felt gasket laid in thin white lead, and making a tight joint against the water. A large flange nut is set on the inboard end of the stern tube, and has a number of concentric rings similar to the rings on the stern bearing, which make a tight joint also at the inner end of the shaft log. A large gland is provided, forming an inboard stuffing box, and there is a tap for a ¼ in. brass pipe through which grease is forced from a grease cup, thus lubricating the entire length of the stern tube, the grease eventually working out from the after end of the stern bearing.

GENERAL REMARKS

This boat represents the best I know or can imagine in the way of a little cruiser. She is small enough for a single hander, and large enough for two, in case the owner craves company.

As to the design, no small boat built by the hand of man ever had so thorough a tryout as the *Spray*, during her thirteen years of travel up and down the ocean lanes. The man who drove her testified in unqualified terms to her manifold excellences. And even had he been silent, the mere goings and comings of the craft, and the times of these goings and comings as set down in custom house records the world over, would be more eloquent than any eulogy that pen could write.

Ten years ago, when I first turned serious attention to the *Spray*, she seemed to me the perfect cruiser, and that opinion has not changed with the years.

The lines, then, may be accepted as practically perfect.

As to the construction and arrangement, they embody what little I have been able to learn in forty-odd years of small boat sailing. There is no single experiment in the whole range and compass of this work—perhaps a few new applications of old and tried principles. I have played it safe from start to finish—conservative in my part of the work as the lines themselves are conservative.

Any one who builds to these plans will have a craft with fair speed, unequalled comfort for her size, complete safety and supreme seaworthiness.

Stars as Aids to Navigation

(*Continued from page 154*)

sometimes very much less. When the latitude and declination are both high, even an hour angle exceeding three hours may leave the natural haversine of θ to be sought in the second page of the table, while if the hour angle be only a few minutes, the natural haversine θ may be found to be .00001 or even zero. This is, however, no indication of a result lacking in certainty. It only indicates that the altitude of the body is so little affected by a difference of a number of seconds in time that it will represent an altitude difference of 5″, 10″ or 15″ according to the altitude of the observed body.

The St. Hilaire problem can be used in every case to take the place of the ex-meridian or even of the meridian altitude problem, the only reason for resorting to the others being that they are more quickly worked. Within two or three minutes of the meridian, with some latitudes and declinations, the first quantity of the St. Hilaire problem would become zero, where in the ex-meridian two or three seconds of arc might be added. But this is a refinement unnecessary in navigation. On the meridian, the first quantity of the problem having become zero, the zenith distance would equal the algebraic difference of the D R latitude and declination. This difference would be turned into altitude by deducting it from 90° and being compared with the true observed altitude an altitude difference in minutes of arc would be shown and the D R latitude moved north or south by the amount of such difference.

In conclusion, and referring once more to the last figure, the writer deems the matter of sufficient importance to emphasize again the fact that the point C may be chosen at random within a radius of several miles of A, and that the nature of the St. Hilaire problem is such that the solution of it will produce the same Sumner Line and Fix, and also that until this fact is clearly realized so that it may be acted upon with confidence, the usefulness St. Hilaire problem has not been comprehended to its fullest extent.

S. C. 63

(*Continued from page 159*)

She had greater headway than I had judged, and when she brought up with a jerk I nearly went over the side.

I saw a wherry put out from the Squadron Office, and knew that it must be Mr. Le Sauvage, our Squadron Commander. Then wherries appeared from all the other S. C.'s in port. My, wasn't I proud of the 63! And didn't I wish the officers and the crew could be there at that moment when Mr. Le Sauvage came aboard!

The proof that she had won in the scrap was the crude oil and metal wreckage (some parts of battery plates) on her deck. It couldn't be questioned.

. . .

Well, sir, the rest is all personal. Mr. Le Sauvage knew I wanted to transfer to aviation, and he said I could get the transfer now for sure, but now I was plumb proud of the S. C.'s, so I just asked to get an engine room of my own. The chief's rating will come through almost any time now, and soon I'll be boss of my own engine room, and let me tell you, sir, that it will be the best kept engine room in the fleet!

. . .

Wow! Hoot! Meow! Over the side! It was a half hour before we had to report back from liberty, and we were swapping tales about the good times we had had the night before. I had just recited a story I had gotten off at a dinner with a kind old gentleman (he had picked me up at Times Square) and his family at their home. His family included a pretty brown-eyed girl, who looked as though she was taking my tale with several grains of salt, but that leads to another story.

. . .

MORAL:—Don't believe all the sea tales you hear. Remember there was a lot of hard work and darned little excitement for most of us who were stuck on this side.

Racing Results for Nineteen-Nineteen

(*Continued from page 141*)

Sunday Regatta, August 31, 1919

MANHASSET BAY HANDICAP CLASS

START, 3.30. COURSE, 6 MILES

Yacht and Owner	Finish	Elapsed Time
Zirzara, C. W. Atwater	4 52 26	1 22 26
Arcadian—F. E. Raymond	4 57 31	1 27 31
Sirene—R. W. Fraser	4 57 37	1 27 37
Mignon—A. C. Fox	4 58 01	1 28 01
Garnet—R. G. Sloane	5 13 39	1 43 39

Corrected time—*Zirzara*, 1:22:26; *Arcadian*, 1:16:48 *Sirene*, 1:16:30; *Mignon*, 1:18:33; *Garnet*, 1:30:53.

STAR CLASS—CLASS A

START, 3.35. COURSE, 6 MILES

	Finish	Elapsed Time
Aria—G. Abbott	5 08 37	1 33 37
Taurus—W. L. Inslee	5 10 44	1 35 44
Maia—B. L. Linkfield	5 12 31	1 37 31
Hydra—C. E. Hyde	5 13 07	1 38 07
Tara—D. Cowl	5 13 15	1 38 15
Mars II—L. A. D. Percival	5 15 35	1 40 35
Saturn—G. W. Elder	5 16 46	1 41 46
Nereid—W. Crosby	5 17 10	1 42 10
Little Dipper—G. A. Corry	5 17 27	1 42 27
Snapper—A. Iselin 2d	5 26 20	1 51 20
Little Bear—Allan Walker	Did Not Finish.	

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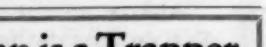

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STAR CLASS—CLASS B

START, 3.45. COURSE, 6 MILES

Yacht and Owner	Finish	Elapsed Time
Aquilla—Gordon Curry	5 19 07	1 34 07
Neptune—W. Teves	5 20 32	1 35 32
Banshee—M. Egerton	5 22 57	1 37 57
Dione—A. E. Duerr	5 23 05	1 38 05
Vega—R. D'Oench	5 23 48	1 38 48
Draco—G. A. Schieren	5 24 02	1 39 02
Orion—F. K. Thayer	5 27 13	1 42 13
Southern Cross—A. Knapp, Jr.	5 29 19	1 44 19
Big Dipper—J. R. Robinson	5 29 21	1 44 21
Snake—E. Riotte	5 35 19	1 50 19

❁ ❁ ❁

Saturday Series, June 28 to September 6

(Weekly Races)

B DIVISION, STAR CLASS

Yacht and Owner	
1. *Aquilla*—Gordon Curry	
2. *Vega*—Russell D'Oench	
3. *Dione*—G. A. Duerr	
4. *Orion*—F. K. Thayer	Boats stand in
5. *Gemini*—J. T. Pirie II	this order for
6. *Cynosure*—H. T. Kingsbury	entire series.
7. *Hika*—G. L. Simonson	
8. *Draco*—A. G. Schieren	
9. *Athena*—A. V. Fraser	

❁ ❁ ❁

Manhasset Bay Yacht Club Annual Regatta

August 23, 1919

Warning signal, 1.15 p. m. Preparatory 1.20 p. m.

Warning Signal, 1.15 p. m. Preparatory, 1.20 p. m. Starting and Finishing Line between Red and Black striped buoy North East of Execution Light and Committee Boat, *Remaha*.

COURSE No. 1

From Starting Line to Parsonage Point to Week's Point to Finish Line. Distance, 11 miles.

P CLASS

START, 2.20 P. M.

Yacht and Owner	Finish	Elapsed Time
Pellegrina—B. K. Sharp	5 39 50	3 19 50
Joyant—T. B. McGovern, Jr.	Time Not Taken.	

NEW YORK "THIRTIES"

START, 1.25

Yacht and Owner	Finish	Elapsed Time
Adios—F. L. Richards	4 24 22	2 59 22
Mizpah—D. R. Richardson	4 41 26	3 16 26
Rowdy—Chas. Belsky	4 45 00	3 20 00
Minx—T. S. Clark	4 49 34	3 24 34

SOUND SCHOONERS

START, 1.30

Allure—J. W. & E. P. Alker	5 01 33	3 31 33
Alicia—W. M. Baldwin	5 16 30	3 46 30
Algol—L. Hawthorne	5 34 07	4 04 07

NEW YORK "FORTIES"

START, 1.35

Mistral—Philip Mallory	5 31 13	3 56 13
Shawara—H. Wesson	5 42 23	4 07 23

% HANDICAP CLASS, I DIVISION

START, 1.40

Yacht and Owner	Finish	Elapsed Time
Sachem II—R. B. Metcalf	4 54 28	3 14 28
Wasaka—W. L. Coursen	5 01 10	3 21 10
Skid—H. L. Curry	5 05 02	3 25 02

Corrected Time: *Sachem II*, 3:00:51; *Wasaka*, 3:12:25; *Skid*, 3:18:14.

% HANDICAP CLASS, II DIVISION

START, 1.40

Yacht and Owner	Finish	Elapsed Time
Sally IX—A. E. Black	4 56 17	3 16 17
Mignon—A. C. Fox	5 12 24	3 32 24

Corrected Time: *Sally IX*, 3:16:17; *Mignon*, 3:28:28.

Comet and *Nida* of this Division of % Class did not arrive in time to start with *Sally IX* and *Mignon* and were given a special race. Start 2:36:30.

Yacht and Owner	Finish	Elapsed Time
Comet—C. Vanderbilt, Jr.	5 38 47	3 02 17
Veda—W. Laurier	5 40 05	3 03 35

Corrected Time, *Comet*, 3:02:17; *Veda*, 3:02:40.

LARCHMONT INTER CLUB CLASS

START, 1.45

Course No. 2

From Starting Line to Scotch Caps to Weeks Point to Finish Line. Distance 9 miles.

Yacht and Owner	Finish	Elapsed Time
Le Cygne—A. Walters	5 03 22	3 18 22
Sirens—R. W. Fraser	5 04 33	3 19 33
Whiff—H. Parker	5 05 30	3 20 30
Barbara—C. Shields	5 24 55	3 39 55

U CLASS

START, 1.50

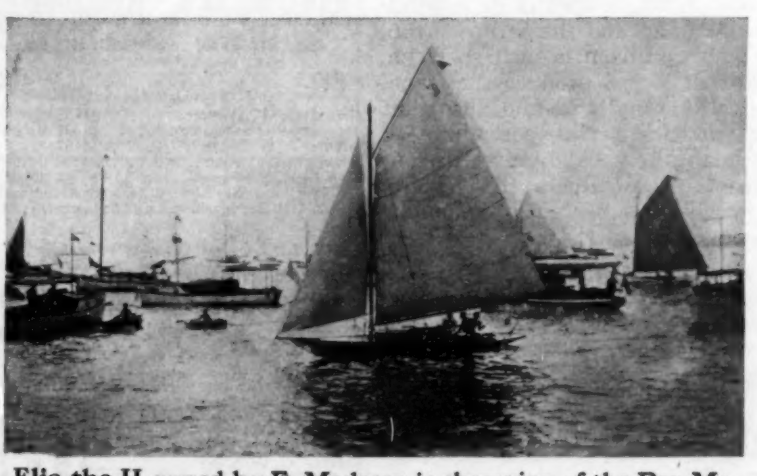
Tern—W. T. Hornidge	4 56 16	3 06 16
Feather—A. G. Clark	4 59 49	3 09 49
Mingo—H. T. Hornidge	5 00 30	3 10 30

% HANDICAP CLASS, III AND IV DIVISIONS

START, 1.55

Arethusa—W. A. Walters	5 04 07	3 09 07
Acadian—F. E. Raymond	5 04 47	3 09 47
Vigilance—G. W. Ford	5 48 16	3 53 16
Frances—S. Wicks	5 58 49	4 03 49

Corrected Time: *Arethusa*, 3:02:30; *Acadian*, 3:04:07; *Vigilance*, 3:25:51; *Frances*, 3:36:24.



Elia the II owned by F. Madeson is champion of the Ben Ma Chree Yacht Club.

GLEN COVE JEWEL CLASS

START, 2.00

Yacht and Owner	Finish	Elapsed Time
Kat—C. H. Appelby	5 17 25	3 17 25
Garnet—R. Sloane	5 29 03	3 29 03
Aquamarine—C. L. Weyand	5 53 20	3 53 20

MANHASSET BAY CLASS

START, 2.00

Kit—Siefert	5 36 43	3 36 43
Mahaska—Robinson	6 16 00	4 16 00

NEW ROCHELLE CLASS

START, 2.00

Nereid—D. Geriat	6 47 00	4 47 00
Virginia—A. Bastine	Time Not Taken.	

COURSE No. 3

Distance, 6 miles. From Starting Line to Delancey Point to Prospect Point to Finish.

ORIENTA CLASS

START, 2.05

Yacht and Owner	Finish	Elapsed Time
Thane—A. G. Snow	3 58 23	1 53 23
Sally—Haggerty Bros.	4 02 48	1 57 48
Alice—A. K. Griffin	4 03 48	1 58 48
Scot—A. Vanderloan	Time Not Taken.	

STAR CLASS, DIVISION A

Altair—E. V. Willis	3 45 50	1 35 50
Big Dipper—J. R. Robinson	3 48 25	1 38 25
Snapper—Adrian Islin II.	3 49 50	1 39 50
Aria—Geo. Abbott	3 50 00	1 40 00
Maia—B. L. Linkfield	3 50 25	1 40 25
Little Dipper—Geo. A. Corry	3 52 12	1 42 12
Mars II—L. A. D. Percival	3 53 40	1 43 40
Neptune—F. W. Teeves	3 54 39	1 44 39
Taurus—W. Inslee	Time Not Taken.	

STAR CLASS, DIVISION B

(Open only to members of M. B. Y. C.)

START, 2.15

Yacht and Owner	Finish	Elapsed Time
Draco—A. G. Schieren	3 58 40	1 43 40
Aquilla—Gordon Curry	4 04 13	1 49 13
Orion—F. K. Thayer	4 05 27	1 50 27
Cynosure—H. T. Kingsbury	4 10 18	1 55 18
Gemini—J. T. Pirie II.	4 12 40	1 57 40

Aquilla finished second but was disqualified; *Orion* placed second, *Cynosure* placed third.

BELL CAT CLASS

START, 2.20

Yacht and Owner	Finish	Elapsed Time
One Bell—Harry Hoak	4 23 52	2 03 52
Eight Bells—E. J. Schlette	4 25 00	2 05 00
Three Bells—E. Delavante	4 35 41	2 15 41

Ben Ma Chree Boat Club Gravesend Bay

NINETEEN-NINETEEN was one of the most successful seasons in water sports and recreation the Ben Ma Chree club has had since the days before the war. The members of the club were very successful in racing contests. At the regatta of the Allied Boat and Yacht Clubs of Gravesend Bay, they captured three first prizes and one third prize.

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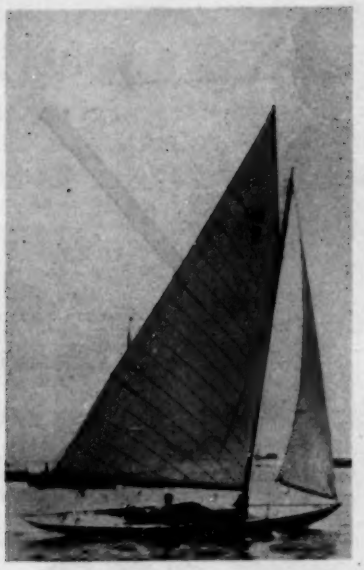

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Henry Milne won first prize in the 10 mile race for hunting and trunk cabin boats with his boat *Ha Ha*. F. Madison with his boat *Elia the II* won first prize in the sailing contest for sloop rigged class.

The club closed its racing activities for the season at its Regatta on September 14 with the largest and most enthusiastic gathering in the history of the Ben Ma Chree Club.

QUISSETT YACHT CLUB

Class	No. of Starters	Winner	Owner
August 9			
Class Q Knockabouts	5	*Vireo*	R. E. Forbes
12'6" Herreshoff Knock.	4	*Midget*	R. E. Forbes
August 23			
Class Q Knockabouts	6	*Little Jeff*	D. L. Whittemore, Jr.
50 ft. Class Sloops	2	*Medora*	Seward Prosser.
September 1			
Class Q Knockabouts	7	*Vireo*	R. E. Forbes

Other Races may be held during the month of September.

Why the Metric System?

President F. O. Wells of the Greenfield (Mass., U. S. America) art cap die gage hole jig jag nib nub rim ream slot slip slit slide snip screw tab tip top test terse tie tread trim tug tube zig zag machine tool co., the concern that manufactured so many things indispensable to the supply of war munitions, declared (and hosts of other experts agree with him) that the German kaiser would not have dared declare war if America and Britannia had been standardized on metrics when the Germans adopted the system exclusively in 1871. In that event they could instantly have co-operated with one another and with all their allies, co-ordinating the supplies and munitions from every part of the world.

The history of meter-liter-gram emphasizes the advantages gained by those nations that use it. No other period of history emphasizes this more than the era of the world war.

Since the metric system bestows such manifest benefits, why do not *all* use exclusively this simple and convenient tool? A few opponents put forward a variety of answers, on no effect.

Obstruction: While the metric system was legalized in America 1866, its exclusive use has been delayed by 3 factors: (1) the confusion occasioned by its Latin and Greek prefixes; (2) habit, custom; (3) ignorance of the value of uniformity.

As to the first cause of delay in adoption: Sometimes the popularity of an invaluable necessity is long deferred by its name. The metric system is the victim of terms—not the name "metric" perhaps, although even that may seem formidable.

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But the Latin and Greek prefixes confuse the mind, and obscure the Watt simplicity of the system, so as to delay its adoption in English-speaking countries.

This objection, however, can be disposed of as inconsequent. America does not use these terms—that is, not exactly—in the metric decimal money system, the unit of which is the dollar.

That is all that is necessary for 90 per cent of the people to know—dollar-meter-liter-gram. All these units may be multiplied and divided just like dollar.

Not very difficult, is it?

The 2d cause of delay originates from our habit of thinking in obsolete yards, feet, hands, spans, inches, fathoms, rods, links, chains, furlongs, miles, pounds, 2 different quarters, quarterns, ounces, pennyweights, minims, drams, grains, scruples, dwts., 3 different cwts., 2 different tons and 1 tun, 4 different stones, 4 different pounds, 4 different ounces, 2 different gallons, 2 different quarts, 2 different pints, gills, many different bushels, many pecks, and so on. Also we think with different units for different objects. Dry measure, wet measure, wine measure, beer measure, avoirdupois, apothecary, troy weight and so on *ad infinitum*. Just think of the innumerable different units to which we have accustomed ourselves, mostly German, which Germany scrapt in 1871, and put in her museums beside stone axes, stone adzes and other stone age tools.

Instead of such a horrible hodge-podge (it is no system, no science), making change undesirable, it is itself really the best reason for simplification and the universal application of meter-liter-gram. What we must do is to cast aside the shackles of ages-long custom and habit, now binding us in an ugly sort of mental slavery.

As to the 3rd cause of obstruction; until 1914 Germany, Austria, Hungary, Bulgaria, Turkey had not succeeded in convincing Britannia-America of the indispensable necessity of being united, always ready, equipt with the best up to the minute, for World War and World Trade—now they are convinced.

It may be feared by some that the expense of changing from the present confusion to the simple scientific decimal metric standards would be prohibitive. But it did *not* prove so in the case of all the other 152 countries of the world (including Germany, Austria-Hungary, Bulgaria and Turkey) that have adopted it.

Contrary to the generally prevailing idea, weights will *not* have to be replaced—merely readjusted.

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64. Van Blerck Motor Co.
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74. Wolverine Motor Works
75. Buffalo Gasoline Motor Co.
76. Kermath Motor Co.
77. Sterling Engine Co.
78. Mianus Motor Works
79. Fay & Bowen Engine Co.
80. Standard Motor Const. Co.
81. Delaware Marine Motor Co.
82. James Craig Engine & Mach. Works
181. Talbot Engineering Corp.

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83. Gray Motor Co.
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86. Bridgeport Motor Works

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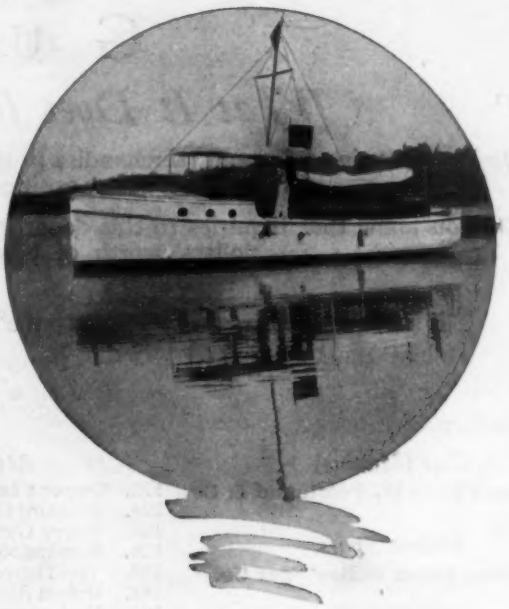

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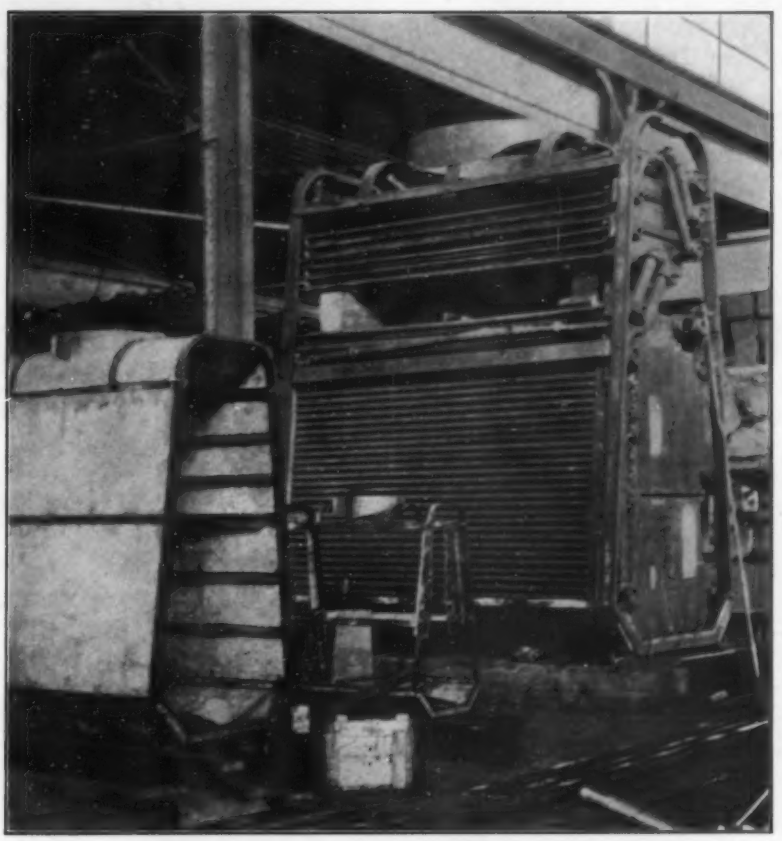

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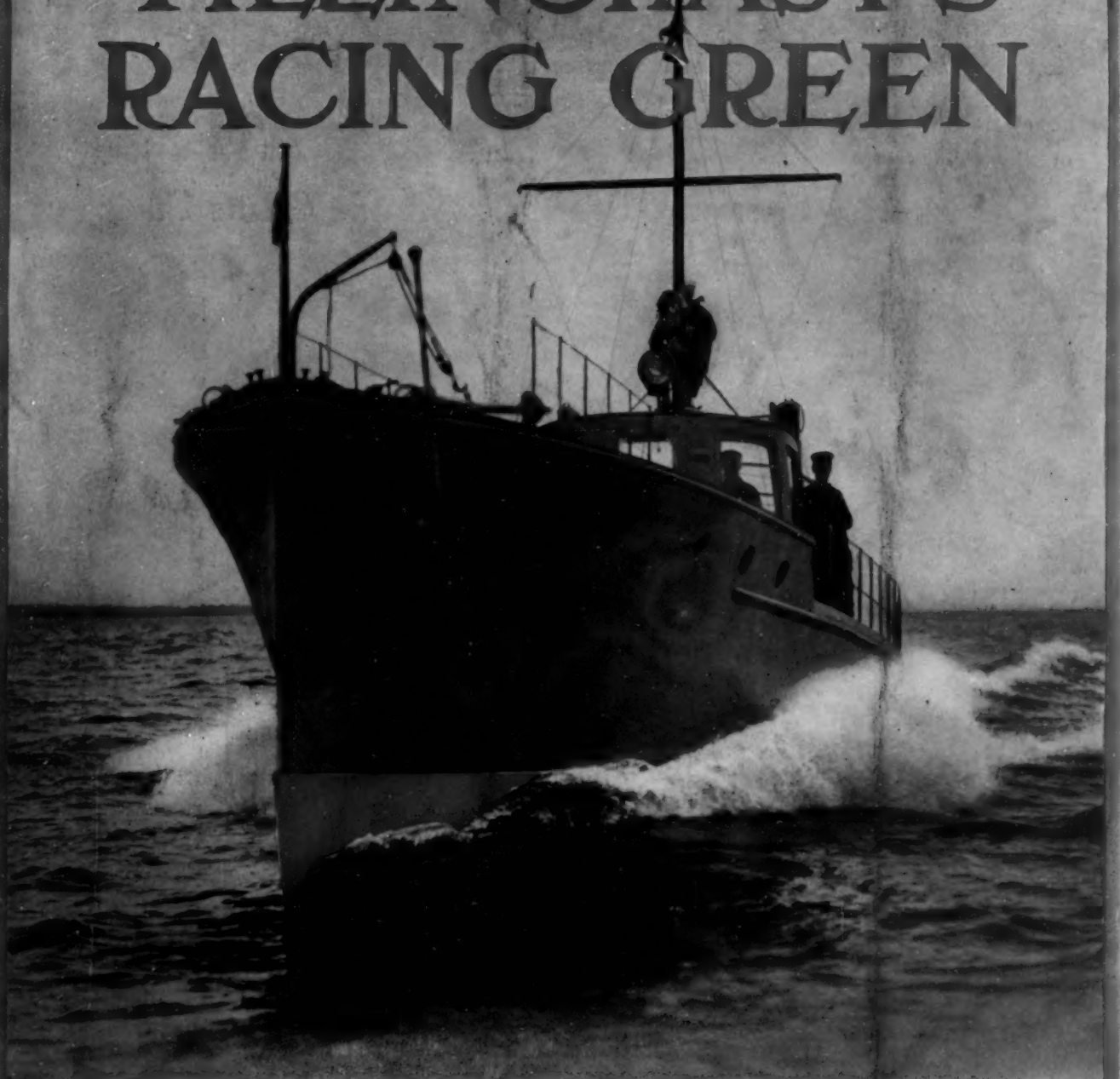

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